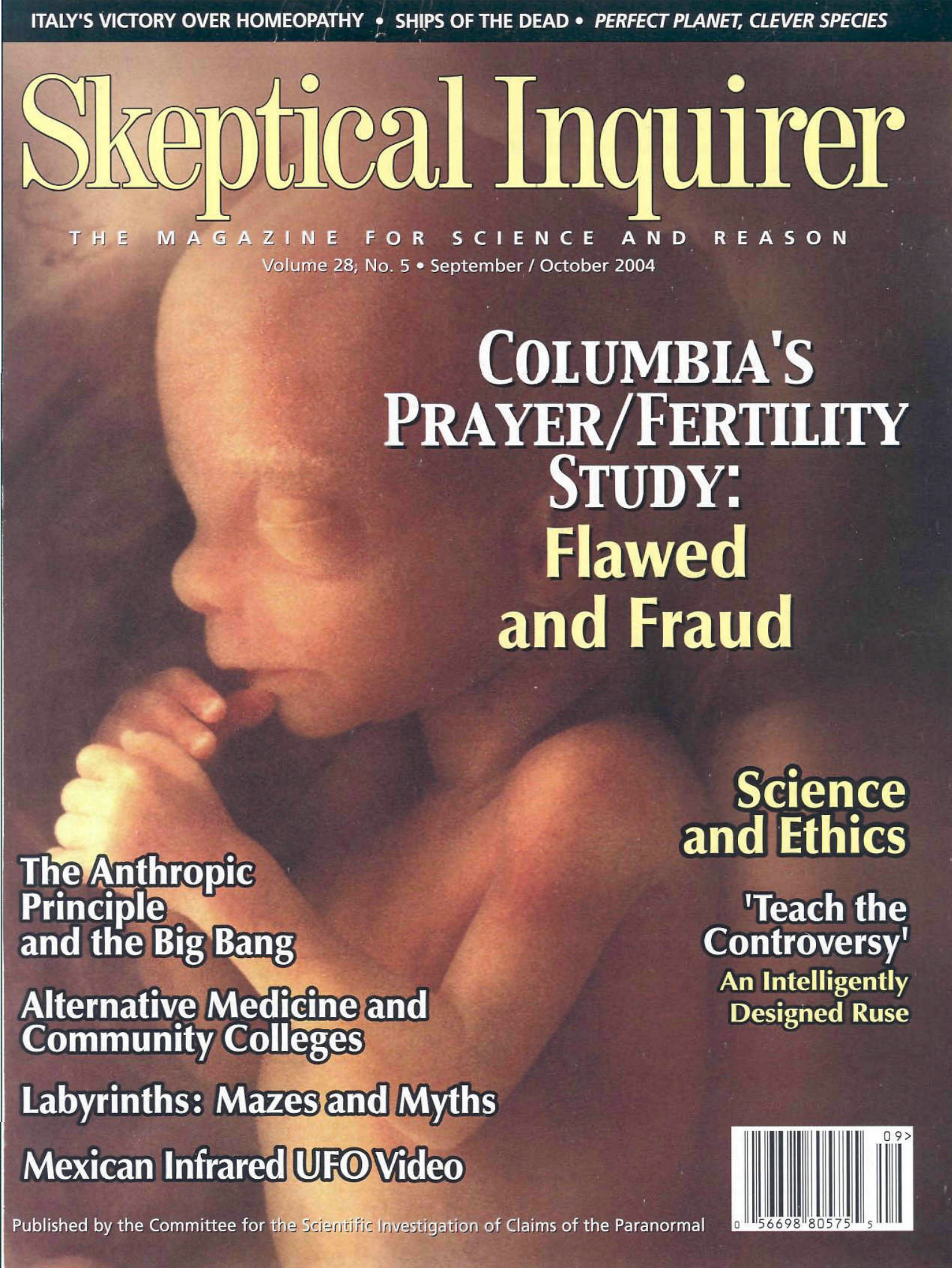
ITALY'S VICTORY OVER HOMEOPATHY • SHIPS OF THE DEAD • *PERFECT PLANET, CLEVER SPECIES*

# Skeptical Inquirer

THE MAGAZINE FOR SCIENCE AND REASON
Volume 28, No. 5 • September / October 2004



## COLUMBIA'S PRAYER/FERTILITY STUDY: Flawed and Fraud

## Science and Ethics

## The Anthropic Principle and the Big Bang

## 'Teach the Controversy'
An Intelligently Designed Ruse

## Alternative Medicine and Community Colleges

## Labyrinths: Mazes and Myths

## Mexican Infrared UFO Video

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

09>
0 56698 80575 5

# THE COMMITTEE FOR THE SCIENTIFIC INVESTIGATION

## of Claims of the Paranormal

AT THE CENTER FOR INQUIRY–*TRANSNATIONAL* (ADJACENT TO THE STATE UNIVERSITY OF NEW YORK AT BUFFALO)

## AN INTERNATIONAL ORGANIZATION


**Paul Kurtz,** Chairman; professor emeritus of philosophy, State University of New York at Buffalo
**Barry Karr,** Executive Director
**Joe Nickell,** Senior Research Fellow
**Richard Wiseman,** Research Fellow
**Massimo Polidoro,** Research Fellow
**Lee Nisbet,** Special Projects Director

## FELLOWS

**James E. Alcock,*** psychologist, York Univ., Toronto
**Jerry Andrus,** magician and inventor, Albany, Oregon
**Marcia Angell,** M.D., former editor-in-chief, *New England Journal of Medicine*
**Robert A. Baker,** psychologist, Univ. of Kentucky
**Stephen Barrett,** M.D., psychiatrist, author, consumer advocate, Allentown, Pa.
**Willem Betz,** professor of medicine, Univ. of Brussels
**Barry Beyerstein,*** biopsychologist, Simon Fraser Univ., Vancouver, B.C., Canada
**Irving Biederman,** psychologist, Univ. of Southern California
**Susan Blackmore,** Visiting Lecturer, Univ. of the West of England, Bristol
**Henri Broch,** physicist, Univ. of Nice, France
**Jan Harold Brunvand,** folklorist, professor emeritus of English, Univ. of Utah
**Vern Bullough,** professor of history, California State Univ. at Northridge
**Mario Bunge,** philosopher, McGill University
**John R. Cole,** anthropologist, editor, National Center for Science Education
**Frederick Crews,** literary and cultural critic, professor emeritus of English, Univ. of California, Berkeley
**F. H. C. Crick,** biophysicist, Salk Inst. for Biological Studies, La Jolla, Calif; Nobel laureate
**Richard Dawkins,** zoologist, Oxford Univ.
**Geoffrey Dean,** technical editor, Perth, Australia
**Daniel C. Dennett,** University Professor and Austin B. Fletcher Professor of Philosophy, Director of the Center for Cognitive Studies at Tufts University
**Ann Druyan,** writer and producer, Ithaca, New York
**Cornelis de Jager,** professor of astrophysics, Univ. of Utrecht, the Netherlands
**Paul Edwards,** philosopher, editor, *Encyclopedia of Philosophy*
**Kenneth Feder,** professor of anthropology, Central Connecticut State Univ.
**Antony Flew,** philosopher, Reading Univ., U.K.
**Andrew Fraknoi,** astronomer, Foothill College, Los Altos Hills, Calif.
**Kendrick Frazier,** science writer, editor, SKEPTICAL INQUIRER
**Yves Galifret,** vice-president, Affiliated Organizations: France
**Martin Gardner,** author, critic
**Murray Gell-Mann,** professor of physics, Santa Fe Institute; Nobel laureate
**Thomas Gilovich,** psychologist, Cornell Univ.
**Henry Gordon,** magician, columnist, Toronto
**Saul Green,** Ph.D., biochemist, president of ZOL Consultants, New York, NY
**Susan Haack,** Cooper Senior Scholar in Arts and Sciences, prof. of philosophy, University of Miami
**C. E. M. Hansel,** psychologist, Univ. of Wales
**David J. Helfand,** professor of astronomy, Columbia Univ.
**Douglas Hofstadter,** professor of human understanding and cognitive science, Indiana Univ.
**Gerald Holton,** Mallinckrodt Professor of Physics and professor of history of science, Harvard Univ.
**Ray Hyman,*** psychologist, Univ. of Oregon
**Leon Jaroff,** sciences editor emeritus, *Time*
**Sergei Kapitza,** former editor, Russian edition, *Scientific American*
**Philip J. Klass,** aerospace writer, engineer
**Lawrence M. Krauss,** author and professor of physics and astronomy, Case Western Reserve University
**Edwin C. Krupp,** astronomer, director, Griffith Observatory
**Paul Kurtz,*** chairman, Center for Inquiry
**Lawrence Kusche,** science writer
**Leon Lederman,** emeritus director, Fermilab; Nobel laureate in physics
**Scott Lilienfeld,** psychologist, Emory Univ.
**Lin Zixin,** former editor, *Science and Technology Daily* (China)
**Jere Lipps,** Museum of Paleontology, Univ. of California, Berkeley
**Elizabeth Loftus,** professor of psychology, Univ. of California, Irvine
**Paul MacCready,** scientist/engineer, AeroVironment, Inc., Monrovia, Calif.
**John Maddox,** editor emeritus of *Nature*
**David Marks,** psychologist, City University, London.
**Mario Mendez-Acosta,** journalist and science writer, Mexico City, Mexico
**Marvin Minsky,** professor of media arts and sciences, M.I.T.
**David Morrison,** space scientist, NASA Ames Research Center
**Richard A. Muller,** professor of physics, Univ. of Calif., Berkeley
**H. Narasimhaiah,** physicist, president, Bangalore Science Forum, India
**Joe Nickell,*** senior research fellow, CSICOP
**Lee Nisbet,*** philosopher, Medaille College
**Bill Nye,** science educator and television host, Nye Labs
**James E. Oberg,** science writer
**Irmgard Oepen,** professor of medicine (retired), Marburg, Germany
**Loren Pankratz,** psychologist, Oregon Health Sciences Univ.
**John Paulos,** mathematician, Temple Univ.
**Steven Pinker,** cognitive scientist, MIT
**Massimo Polidoro,** science writer, author, executive director CICAP, Italy
**Milton Rosenberg,** psychologist, Univ. of Chicago
**Wallace Sampson,** M.D., clinical professor of medicine, Stanford Univ., editor, *Scientific Review of Alternative Medicine*
**Amardeo Sarma,** manger NEC Europe Ltd., executive director, GWUP, Germany.
**Evry Schatzman,** former president, French Physics Association
**Eugenie Scott,** physical anthropologist, executive director, National Center for Science Education
**Robert Sheaffer,** science writer
**Elie A. Shneour,** biochemist, author, director, Biosystems Research Institute, La Jolla, Calif.
**Dick Smith,** film producer, publisher, Terrey Hills, N.S.W., Australia
**Robert Steiner,** magician, author, El Cerrito, Calif.
**Victor J. Stenger,** emeritus professor of physics and astronomy, Univ. of Hawaii; adjunct professor of philosophy, Univ. of Colorado
**Jill Cornell Tarter,** astronomer, SETI Institute, Mountain View, Calif.
**Carol Tavris,** psychologist and author, Los Angeles, Calif.
**David Thomas,** physicist and mathematician, Peralta, New Mexico
**Stephen Toulmin,** professor of philosophy, Univ. of Southern California
**Neil deGrasse Tyson,** astrophysicist and director, Hayden Planetarium, New York City
**Marilyn vos Savant,** *Parade* magazine contributing editor
**Steven Weinberg,** professor of physics and astronomy, Univ. of Texas at Austin; Nobel laureate
**E.O. Wilson,** University Professor Emeritus, Harvard University
**Richard Wiseman,** psychologist, University of Hertfordshire
**Marvin Zelen,** statistician, Harvard Univ.

* Member, CSICOP Executive Council
(Affiliations given for identification only.)



• • • Visit the **CSICOP** Web site at http://www.csicop.org • • •



The SKEPTICAL INQUIRER (ISSN 0194-6730) is published bimonthly by the Committee for the Scientific Investigation of Claims of the Paranormal, 1310 Sweet Home Rd., Amherst, NY 14228. Printed in U.S.A. Periodicals postage paid at Buffalo, NY, and at additional mailing offices. Subscription prices: one year (six issues), $35; two years, $60; three years, $84; single issue, $4.95. Canadian and foreign orders: Payment in U.S. funds drawn on a U.S. bank must accompany orders; please add US$10 per year for shipping. Canadian and foreign customers are *encouraged to use Visa or MasterCard.*

Inquiries from the media and the public about the work of the Committee should be made to Paul Kurtz, Chairman, CSICOP, Box 703, Amherst, NY 14226-0703. Tel.: 716-636-1425. FAX: 716-636-1733.

Manuscripts, letters, books for review, and editorial inquiries should be addressed to Kendrick Frazier, Editor, SKEPTICAL INQUIRER, 944 Deer Drive NE, Albuquerque, NM 87122. Fax 505-828-2080. Before submitting any manuscript, please consult our Guide for Authors for format and references requirements. It is on our Web site at http://www.csicop.org/si/guide-for-authors.html and on page 63 of the September/October 2003 issue. Or you may send a fax request to the editor.

Articles, reports, reviews, and letters published in the SKEPTICAL INQUIRER represent the views and work of individual authors. Their publication does not necessarily constitute an endorsement by CSICOP or its members unless so stated.



Copyright ©2004 by the Committee for the Scientific Investigation of Claims of the Paranormal. All rights reserved.


The SKEPTICAL INQUIRER is available on 16mm microfilm, *35mm microfilm, and 105mm microfiche from University Microfilms International* and is indexed in the Reader's Guide to Periodical Literature.

Subscriptions and changes of address should be addressed to: SKEPTICAL INQUIRER, Box 703, Amherst, NY 14226-0703. Or call toll-free 1-800-634-1610 (outside U.S. call 716-636-1425). Old address as well as new are necessary for change of subscriber's address, with six weeks advance notice. SKEPTICAL INQUIRER subscribers may not speak on behalf of CSICOP or the SKEPTICAL INQUIRER.

Postmaster: Send changes of address to SKEPTICAL INQUIRER, Box 703, Amherst, NY 14226-0703.

# Skeptical Inquirer

September/October 2004 • VOL. 28, NO. 5

## ARTICLES

**18 Can the Sciences Help Us to Make Wise Ethical Judgments?**

*Scientific knowledge has a vital, if limited, role to play in shaping our moral values and helping us to frame wiser judgments. Ethical values are natural and open to examination in the light of evidence and reason.*

PAUL KURTZ

**25 The Columbia University 'Miracle' Study: Flawed and Fraud**

*The much-hyped Columbia University prayer study was flawed and suspicious from the start but now has been fatally tainted with fraud and scandal.*

BRUCE FLAMM

**32 'Teach the Controversy'**

*An Intelligently Designed Ruse*

*In their quest to have Intelligent Design theory included in educational curricula, proponents have rallied behind a specious strategy, exhorting school boards to "teach the scientific controversy" surrounding the issue of evolution.*

ROBERT CAMP

**36 The Campeche, Mexico 'Infrared UFO' Video**

*Mysterious objects filmed by the Mexican military in March 2004 created a flurry of excitement and strange claims. A new analysis from a respected expert suggests that the images have a prosaic explanation—despite premature dismissals by skeptics and believers alike.*

ROBERT SHEAFFER

**41 The Anthropic Principle and the Big Bang: Natural or Supernatural?**

*A Simple Probabilistic Answer*

*A vast literature is devoted to discussion of the anthropic principle. This article offers a simple discussion of the anthropic principle in Bayesian probabilistic terms. While it intentionally simplifies the problem, it demonstrates that interpretations of the anthropic principle based on the hypothesis of its supernatural origin can be refuted on simple probabilistic grounds.*

MARK PERAKH

**46 Alternative Medicine and the Biology Departments of New York's Community Colleges**

*A Survey*

*Chiropractic is increasingly being integrated into—and legitimized by—community college science departments, an association that confuses science-based academic biology with a field rife with pseudoscientific and antiscientific practices.*

FRANK REISER

**49 Labyrinths: Mazes and Myths**

*The use of labyrinths began as a New Age fad but has quickly gone mainstream, with dozens of books, magazine articles, organizations, Web sites, and seminars devoted to the topic. Despite the popularity of labyrinths, literature on the subject is rife with anti-scientific, paranormal beliefs and the movement has escaped any in-depth critical examination.*

BENJAMIN RADFORD

## COLUMNS

**EDITOR'S NOTE**

Fraud and Fertility, Science and Ethics ..... 4

**NEWS AND COMMENT**

Science and Ethics Conference Brings Together Minds from Canada, Europe, and the U.S. / Stem-Cell Debate: Public Still Undecided; Opinion Could Sway / Cold-Fusion Proponent Eugene Mallove Murdered / SI Jesus Article Draws AP Writer's Ire / Elizabeth Loftus Elected to National Academy of Sciences / Betz, Druyan, Helfand Elected CSICOP Fellows; 3 Consultants Named / CSICOP Fellow Neil deGrasse Tyson Hosts *Nova* Miniseries / Pinker, Tarter Named Among *Time*'s 100 Most Influential People..... 5

**INVESTIGATIVE FILES**

Ships of the Dead
JOE NICKELL ..... 11

**THINKING ABOUT SCIENCE**

Did Popper Refute Evolution?
MASSIMO PIGLIUCCI ..... 15

**NOTES ON A STRANGE WORLD**

Lady Homeopathy Strikes Back . . . But Science Wins Out
MASSIMO POLIDORO ..... 16

**SCIENCE BEST SELLERS** ..... 59

**FORUM**

Obscurantism, Tyranny, and the Fallacy of Either Black or White
RALPH ESTLING ..... 60

Tablets and Tabloids: Skeptical Reading
JOHN C. WHITTAKER ..... 63

**LETTERS TO THE EDITOR**..... 65

## REVIEWS

*Perfect Planet, Clever Species: How Unique Are We?*
By William C. Burger

WILLIAM HARWOOD ..... 55

*What the #$*! Do We Know?*
Directed by Mark Vicente, Betsy Chasse, and William Arntz

ERIC SCERRI ..... 56

*Hiding the Elephant: How Magicians Invented the Impossible and Learned to Disappear*
By Jim Steinmeyer

EDWARD SUMMER ..... 58

## EDITOR'S NOTE

# *Fraud and Fertility, Science and Ethics*

In October 2001 news reports related the astonishing news that a refereed medical journal had published a study with extraordinary results: infertile women who were prayed for anonymously by distant Christian prayer groups became pregnant twice as often as those who were not prayed for. It was seen as a "miracle," and Columbia University, with which two of the authors were associated, proclaimed that the study had been carefully designed to eliminate bias.

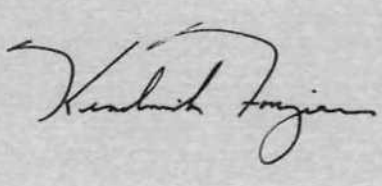
Among those highly unconvinced by these assertions was a California professor of obstetrics and gynecology, an informed critic of alternative medicine claims named Bruce L. Flamm. Flamm's suspicions were raised by the on-the-face unlikelihood of the claims and by the puzzling study design, which he found bewildering and filled with sources of error. He began calling attention to these problems and investigating the matter in depth. His requests of the authors for further details and answers went ignored. (In science there is an obligation to make raw data available for evaluation by one's peers, but the authors never once replied to Flamm.) He published two critiques of the study in *The Scientific Review of Alternative Medicine*, again without response from the authors.

When his attention turned to the authors themselves, Flamm found deeply troubling information about one of them, Daniel Wirth. Wirth had been indicted by a federal grand jury in October 2002 on charges of bilking a company out of $2.1 million. He and his former research associate were charged with mail fraud, interstate transportation of stolen money, making false statements, and five other counts of fraud. Wirth's trial was delayed six times, but on May 14, 2004, Wirth and his colleague pleaded guilty to conspiracy to commit mail fraud and conspiracy to commit bank fraud. Wirth will be sentenced in September. All this is relevant not only because this study has been so highly touted but also because Wirth has published, in non-mainstream publications, a series of other publicized studies making similar extraordinary pro-paranormal claims about "therapeutic touch," human energy fields, miraculous cures, and so on. But the Columbia prayer study was the first appearing to have the imprimatur of establishment science. Now all of these studies are suspect.

*In this issue Flamm describes his more than two-year investigation into the* study, its authors and their stonewalling, and the regrettable role of the journal in ignoring and not responding to the serious criticisms he presented, essentially trying to cover up what is now a serious and even notorious case of highly questionable "science."

* * *

The case raises all sorts of questions about ethical procedures in science. In the second article in this issue, CSICOP and Center for Inquiry (CFI) founder Paul Kurtz, a philosopher, asks another kind of question involving science and ethics: Can science and reason be used to develop wise ethical judgments? With nuance and sensitivity, he argues in the affirmative. The article is based on his keynote address at the CFI conference "Science and Ethics" which was held in Toronto in May.




Skeptical Inquirer

THE MAGAZINE FOR SCIENCE AND REASON

**EDITOR**
Kendrick Frazier

**EDITORIAL BOARD**
James E. Alcock
Barry Beyerstein
Thomas Casten
Martin Gardner
Ray Hyman
Philip J. Klass
Paul Kurtz
Joe Nickell
Lee Nisbet
Amardeo Sarma
Béla Scheiber

**CONSULTING EDITORS**
Robert A. Baker
Susan J. Blackmore
John R. Cole
Kenneth L. Feder
C. E. M. Hansel
E. C. Krupp
Scott O. Lilienfeld
David F. Marks
Eugenie Scott
Richard Wiseman

**CONTRIBUTING EDITORS**
Chris Mooney
James E. Oberg
Robert Sheaffer
David E. Thomas

**MANAGING EDITOR**
Benjamin Radford

**ART DIRECTOR**
Lisa A. Hutter

**PRODUCTION**
Christopher Fix
Paul Loynes

**EDITORIAL ASSISTANT**
David Park Musella

**CARTOONIST**
Rob Pudim

**WEB PAGE DESIGN**
Patrick Fitzgerald, Designer
Amanda Chesworth
Kevin Christopher
Rob Beeston

**PUBLISHER'S REPRESENTATIVE**
Barry Karr

**CORPORATE COUNSEL**
Brenton N. VerPloeg

**BUSINESS MANAGER**
Sandra Lesniak

**FISCAL OFFICER**
*Paul Paulin*

**DEVELOPMENT OFFICERS**
Richard Hull
James Kimberly
Sherry Rook

**CHIEF DATA OFFICER**
Michael Cione

**STAFF**
Darlene Banks
Julie Beauchamp
Patricia Beauchamp
Matthew Cravatta
Jennifer Miller
Heidi Shively
Anthony Santa Lucia
John Sullivan
Vance Vigrass

**PUBLIC RELATIONS DIRECTOR**
Kevin Christopher

**EDUCATIONAL DIRECTOR**
Amanda Chesworth

**INQUIRY MEDIA PRODUCTIONS**
Thomas Flynn

**DIRECTOR OF LIBRARIES**
Timothy S. Binga

The SKEPTICAL INQUIRER is the official journal of the Committee for the Scientific Investigation of Claims of the Paranormal, an international organization.

# Science and Ethics Conference Brings Together Minds from Canada, Europe, and the U.S.

JOHN GAEDDERT

The Center for Inquiry–*Transnational* hosted its conference, "Science and Ethics: How Scientific Inquiry Helps Frame Value Judgments," in Toronto, Canada, from May 13–16, 2004. Conference organizers brought together twenty-three speakers in the fields of science, medicine, philosophy, journalism, and education for four days of presentations.

Attendees gathered at the Courtyard Marriott, where they mingled with CFI staff and members of the Ontario Skeptics and the Toronto Humanists. When they weren't attending conference sessions, they explored the book room or roamed out to sample Toronto's culture.

The conference got under way on Thursday evening, with CFI Chair Paul Kurtz and Mario Bunge from McGill University delivering two keynote addresses on "The Science of Ethics." A crew from TVOntario videotaped their presentations for use on the cable show *Big Ideas.*

"Scientific naturalists believe that secular societies already have developed responsible ethical norms, and that science and reason have helped us to solve moral dilemmas," said Kurtz. "How and in what sense is morality possible without religion, is a vital issue that needs to be discussed in contemporary society, for this may very well be the hottest issue of the twenty-first century." (For more on the topic, see Kurtz's article on page 18 in this issue.)

The talk was marred only by minor technical difficulties, such as when the lecture hall's lights randomly dimmed, increased, and even went out completely for a moment. It turned out that the Catholic Charities banquet one partition over was adjusting their lights, which affected the entire hall. The problem was corrected after a few tense minutes. We all appreciated the irony—especially DJ Grothe, who joked, "How many secular humanists does it take to turn on a light-bulb? None, when Catholic Charities is meeting next door."

A student delegation from across the country (brought in by CFI–*On Campus*) attended the sessions and assisted with various duties.

Panelists for the session on "The Role of Science in Ethical Inquiry" included frequent *Free Inquiry* contributor Vern Bullough, Bill Rottschaefer of Lewis and Clark College, Chris DiCarlo of the University of Ontario Institute of Technology, and Jillian McIntosh of the University of Western Ontario. Bullough gave a meticulous presentation on the social ramifications of sex changes (prompting one of the students to quip, "Good thing he's not doing a slide show"). Rottschaefer discussed attempts to augment philosophical ethics with the physical sciences. DiCarlo talked about the universal human foundations of morality, and how the search for "absolute truths" will always be constrained by the physical limitations of the day. McIntosh stirred up the crowd with a bold presentation, taking the role of a "puzzled yet sympathetic interlocutor" to combat what she saw as an attitude of philosophical complacency. Stating that the argument of censorship in stem-cell research is a red herring, she suggested that there is no single "scientific outlook" but a multitude of outlooks, and urged scientists and skeptics alike not to get carried away by their own fervor.

The Friday luncheon was hosted by the Commission for Scientific Medicine and Mental Health (CSMMH), with presentations by its director Andrew Skolnick and Scott Lilienfeld, editor of the *Scientific Review of Mental Health Practice.* Discussions included the long history of quack medicine and the importance of watchdog organizations such as the CSMMH.

Tom Flynn and John Novak take questions during a break-out session on Sunday.

Irving Louis Horowitz, Vern Bullough, and Paul Kurtz confer at the Awards Banquet.

Jim Alcock, recipient of CSICOP's In Praise of Reason Award, mingles with Paul Kurtz and friends.

James Brown, Richard Hull, Ron Bailey, and Gilbert Hattois attend a plenary session.

David Koepsell, Executive Director of the Council for Secular Humanism, chaired the panel on "Medicine and Ethics," which featured medical doctors including Kimball Atwood, a contributing editor of the *Scientific Review of Alternative Medicine (SRAM)*, Bernard Patten of Rice University in Houston, Robert Buckman of the University of Toronto, and Donald Calne of the University of British Columbia. They discussed the challenges of reconciling multiple worldviews or ethical systems; the ability of ethics to influence social opinion and thereby shape laws; and the essential role of social, moral, and ethical codes in human societies.

Saturday morning, attendees passed around the *Toronto Star* and a full-page article, "Message in a test tube," which reported on the role of ethics and religion in public policy and scientific research and featured quotes from Kurtz, Bunge, and CFI–*Metro New York* Director Susan Jacoby. It was a fitting tie-in to the Saturday morning session, "Scientific Freedom and Responsibility," where Richard Hull was joined by Ronald Bailey of *Reason* magazine, Gilbert Hottois from the University of Brussels, and James Brown from the University of Toronto. The Saturday afternoon session, "Human Behavior and Ethics," brought together a panel of professors: CSICOP fellows Jim Alcock and Barry Beyerstein, Miriam Thalos from the University of Utah, and John Teehan of Hofstra University.

The Saturday evening banquet, emceed by Jim Underdown of CFI–*West*, was a chance to honor some esteemed members of the CFI community. Kurtz presented the CFI's first-ever "Science and the Public Award" to Irving Louis Horowitz, head of Transaction Publishers, who reflected on the value of organizations like the CFI and the importance of having "careful critics of power" in every age. Vern Bullough presented CSICOP fellow James Alcock with the "In Praise of Reason Award" (the highest honor CSICOP bestows, previously given to such notables as Carl Sagan, Steven Jay Gould, and Richard Dawkins). Alcock thanked Bunge and Kurtz for their impact on his career, and shared some anecdotes from his career in the skeptical movement. He commented that while many scientists were indifferent to paranormal claims (because the paranormal never posed a serious threat to science), there are still very real threats to science such as alternative medicine and fundamentalist religious viewpoints. After the awards ceremony, Underdown treated the crowd to his irreverent take on the Ten Commandments.

On Sunday morning, attendees split up for two concurrent sessions: "Naturalism, Science, and Ethics" featuring Paul Kurtz, Oliver Curry of Rutgers University, and Fred Wilson from the University of Toronto. Curry's presentation, which focused on the evolutionary basis for many common moral values, was especially well received. "Policy and Ethical Judgments" featured Ed Buckner, Southern Director of the CSH, Irving Louis Horowitz, John Novak, and Tom Flynn, editor of *Free Inquiry*.

This concluded the conference, but not the weekend. While many attendees were packing their bags to return home, Andrew Skolnick led a group to the Ontario Science Centre, where they marveled at the cutting-edge displays and hands-on exhibits.

*John Gaeddert is Assistant Public Relations Director at the Center for Inquiry.*

## Stem-Cell Debate: Public Still Undecided; Opinion Could Sway

The volatility of public opinion about stem-cell research means that opinion could be swayed in either direction, according to Ohio State University researcher Matt Nisbet, who recently studied poll results on the issue.

"Polls show that the public doesn't know much about the science or the policy surrounding stem-cell research, and that means they really haven't solidified their opinions," said Nisbet, an OSU assistant professor of journalism and communication. Stem-cell research may become a major issue again because of Ronald Reagan's recent death and bout with Alzheimer's disease. Some are using Reagan's death as an opportunity to lobby for the controversial research, which proponents argue could help find a cure for Alzheimer's and other diseases.

"The public is at a point where they are probably open to the appeals of both advocates and opponents of stem-cell research," Nisbet said. "The battle is on among both sides to define the issue in terms that will help their cause. Reagan's death could make this a higher profile issue again."

Nisbet recently studied more than 150 polls of Americans concerning their views on stem-cell research. His findings appear in the current issue of *Public Opinion Quarterly*. Stem cells are primitive cells from which other, more specialized cells develop. Many scientists believe stem cells may someday be useful as therapies for a variety of diseases and conditions, including Alzheimer's, Parkinson's disease, and spinal-cord injuries. But the most useful stem cells come from early human embryos, which are destroyed in the process of retrieving the cells. As a result, many religious conservatives oppose stem-cell research, likening it to abortion.

Overall, Nisbet said polls indicate most Americans have strong reservations about the use of embryos for stem-cell research. But their support or opposition depends quite a bit on how poll questions are worded.

For example, results differed in polls conducted in 2001 by the Juvenile Diabetes Research Foundation (JDRF) and the National Council of Catholic Bishops (NCCB).

The JDRF poll questions talks about stem cells coming from extra embryos "donated to research" and discusses how

stem cells may provide cures for eight high-profile diseases or injuries.

On the other hand, the NCCB poll talks about "experiments" using stem cells from "live" human embryos that would be "destroyed in their first week of development," all paid for with "federal tax dollars."

Not surprisingly, public support for stem-cell research was 65 percent in the JDRF poll, while 70 percent of respondents in the NCCB poll were opposed to funding this research.

"The fact that the public can be influenced so much by how the questions are worded tells me that Americans are susceptible to be influenced by groups on both sides. It depends on who crafts a message that appeals most to the public," Nisbet said. Support also depends on the type of embryo used in research. Public support seems highest for funding of stem-cell research that uses either adult cells or extra embryos created and unused at fertility clinics. Public support for funding is lowest, by far, for research that used cloned embryos as sources, an important finding considering that many scientists consider cloned embryos to be a preferred source for stem cells.

"Events like Ronald Reagan's death are very unpredictable, but it could cast the public's focus back on the issue and create momentum for one side or the other," Nisbet said. "If Nancy Reagan goes on a campaign in support of this research, it could have a real impact." Already, legislators in New York and Illinois have introduced bills using Reagan's name that would fund stem-cell research in their states.

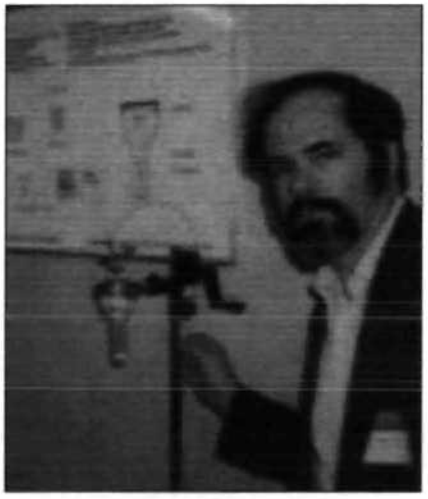
In California, a $3 billion proposition will be on the November ballot to provide funding for the controversial research.

Reagan's death has also spurred advocates to again see where the public stands on the issue. But Nisbet finds recent survey results less than convincing. "These polls were commissioned in part to test communication strategies that could be used by research advocates, not as scientific instruments that carefully and validly measure public opinion. For funding advocates, the results clearly show that if they can make the connections between research and cures overwhelmingly salient in media coverage, the public is likely to be swayed. Outside of this hypothetical, however, the polls don't provide good evidence that public opinion has changed since 2002. "Still, in contrast, other commissioned polls indicate that opponents of funding will do best by linking stem-cell research to abortion and make it into a moral and religious issue. In the end, it comes down to a battle to frame media coverage and campaign messages," he said.

## Cold-Fusion Proponent Eugene Mallove Murdered

Cold-fusion proponent Eugene F. Mallove was found murdered in Norwich, Connecticut, on Friday, May 14, 2004. The *Norwich* (Connecticut) *Bulletin* reported on May 17 that "News of the death of a prominent scientist from New Hampshire in Norwich Friday has spread across the country, prompting a flood of condolences—along with some conspiracy theories."

Few details were released immediately about circumstances of the death of Mallove, 56, formerly of Norwich. Mallove lived in Pembroke, New Hampshire. His body was discovered shortly before 11 P.M. at a family-owned home in Norwich, which he was at one time renting to tenants, according to neighbors. His death was ruled a homicide by blunt-force trauma to his head and neck, according to the report by the Office of the Chief State Medical Examiner. Police said the assault occurred during a suspected robbery.



Eugene F. Mallove, 1947–2004.

Mallove, an MIT graduate, was an outspoken proponent of the reality of cold fusion. He was associated with the New Energy Foundation (www.infinite-energy.com), publisher of *Infinite Energy: The Magazine of New Energy Technology*, which championed cold fusion (which it called "new hydrogen physics") and other energy schemes (such as vacuum or zero-point energy) it considered to be neglected by mainstream science.

In March 2004, the U.S. Department of Energy acknowledged that it was undertaking a new review of cold-fusion claims and reports. No timescale was given and no conclusions have yet been announced.

*—Kendrick Frazier*

## SI Jesus Article Draws AP Writer's Ire

In May, veteran Associated Press religion writer Richard Ostling wrote a scathing story criticizing CSICOP Senior Research Fellow Joe Nickell and one of his sources—Robert M. Price, author of *The Incredible Shrinking Son of Man* (Prometheus, 2004)—for daring to pose the possibility that Jesus never actually existed.

Ostling took offense to Joe Nickell's special report "'Visions' Behind *The Passion*" in the May/June 2004 issue of SKEPTICAL INQUIRER, where Nickell writes: "Of course, historically, apart from later Christian sources, there is virtually no evidence for Jesus' crucifixion—or even his very existence," citing Robert Price. Ostling takes Nickell's statement entirely out of its context in a

larger discussion of whether Mel Gibson's movie *The Passion of the Christ* "is as it was."

Ostling suggests that the "SKEPTICAL INQUIRER needs to be more skeptical about its skepticism." He proceeds to delve into a laundry list of references to Jesus and Christianity by ancient historians, such as Flavius Josephus, Pliny the Younger, Suetonius, and Tacitus, all of whom wrote about 100 years after Jesus' death. Ostling also points to the letters of Paul in the New Testament, though *Paul never met Jesus and only first* "encounters" him in his vision on the road to Damascus.

At the end of his article, Ostling attempts to discredit Joe Nickell's "humanist colleague," Robert Price, whom he describes as "a member of the left-wing Jesus Seminar."

We asked Robert Price for his reaction to Ostling's piece. He provided the following response:

> Richard Ostling, long-time religion editor for *Time* magazine, cannot be expected to take kindly to radical scholarly speculations about the historical (or possibly *non*-historical) Jesus. Whether we can know anything about the historical Jesus, we can know about the historical Ostling. Among other things, he is an evangelical Christian believer. On many matters his convictions do not shape his reporting on religion, or such is my reading after many years of enjoying his work. With one exception: I am a Fellow of the Jesus Seminar, and I have been amazed at the blatant twisting of the facts in *Time*'s reporting of our semiannual sessions. I can't imagine Ostling and his personal savior much care for the results of our scholarship.
>
> But Ostling's recent comments for the Associated Press raise a broader question. I realize that popular media are committed to reinforcing popular conceptions of religion, just as they give the benefit of the doubt to popular beliefs in the paranormal. In both cases, they know where their bread is buttered. It is like the game show *Family Feud*: the "right" answer is not the factually correct one but rather the one that matches the opinion or belief of most people surveyed.
>
> In the present instance, one feels that Ostling is similarly playing to the crowd. "Experts" in the field are said to dismiss the Christ Myth theory with derision. In fact, for Ostling, that is precisely what makes them experts. He has plainly not read a line of my books, one of which he mentions in order to ridicule it, or he would know the debate is much more complex. He might have noticed that a major part of my argument is to show how the critical methods of all New Testament "experts" have far more radical implications than most of their practitioners seem to realize. But Ostling is inclined to judge a book by its cover and not by its content.
>
> What argument Ostling presents is either circular or not to the point. He takes it as simple common sense that the memory of Jesus could not have been distorted so badly within a mere twenty years (given the date of the Pauline Epistles according to the "experts" Ostling accepts). One might offer as counterevidence the astonishing fact that, just fifty years after World War II, half of American young adults do not know whom their country fought in that war!
>
> But that is not quite the point. We beg the question if we frame it as Ostling does: Could a famous figure be so distorted in a few decades? But the Christ Myth contention is that we need not assume any historical figure as the origin point; rather, ancient myths of a dying and rising man-god could well have mutated into a distinctly Christian form. And that is still pretty much the form of Christ-talk we find in the Epistles, which know only of a heavenly savior put to death by evil *archons* (angels), raised up to glory, and given the honorific name "Jesus." There is nothing in Paul about a Nazarene teacher or healer.
>
> And as for early references to Jesus in Jewish and pagan writings: suppose every one of them is genuine. All alike would merely represent Christian preaching as Tacitus, Pliny, et al. heard it in their day. It is not like Geraldo Rivera covering Jesus on the scene. What is very odd is that Philo Judaeus, describing religious life in Palestine in the 40s C.E., mentions nothing of Jesus, nor does the early second-century Pharisee historian Justus of Tiberias. Other wandering teachers, including Proteus Peregrinus and Apollonius of Tyana (though later objects of legendary embellishment), do seem to have been historical figures. Each is mentioned by several contemporaries. Not Jesus.
>
> But the basic issue here is that if an issue is important and one is interested in that issue, it will not suffice merely to count or to cite "experts." One is stuck with the task of becoming one's own expert and learning how to weigh the evidence, complex as it is, for oneself.

*Thanks to Robert Price for taking the time to comment on Richard Ostling's article.*

*—Kevin Christopher*

## Elizabeth Loftus Elected to National Academy of Sciences

CSICOP Fellow Elizabeth Loftus has been elected to the National Academy of Sciences, considered one of the highest honors that can be accorded a scientist. She was one of seventy-two new members of the Academy elected at its annual meeting in Washington on April 20, 2004.

The National Academy of Sciences is a congressionally chartered private organization dedicated to the furtherance of science and its use for the general welfare. Its 1,949 members are among the most distinguished scientists in the nation.

Loftus is Distinguished Professor, Department of Psychology and Social Behavior and Department of Criminology, Law, and Society, University of California, Irvine.

She is particularly noted for her studies of memory, emphasizing the ability of the mind to create false memories. She has written numerous articles in the SKEPTICAL INQUIRER, most recently "I Am Freud's Brain" (with Maryanne Garry, May/June 2004), "Memory Recovery Techniques in Psychotherapy" (with Steven Jay Lynn, Scott O. Lilienfeld, and Timothy Lock, July/August 2003), and the two-part article "Who Abused Jane Doe?" (with Melvin J. Guyer, May/June and August/September 2002).

## Betz, Druyan, Helfand Elected CSICOP Fellows; 3 Consultants Named

Three new Fellows have been elected to the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), publisher of the SKEPTICAL INQUIRER. CSICOP Fellows are distinguished scholars, scientists, educators, or investigators who have made significant contributions to science and skepticism. Fellows are nominated and elected by the CSICOP Executive Council.

The new Fellows are:

- **Willem Betz**, Professor of General Practice Medicine at the University of Brussels (VUB), Chair and Director of the Academic Center for Training and General Practitioners, and co-founder and general secretary of the Belgian Skeptics organization SKEPP. He is active in science and public education about distinctions between alternative medicine and scientific medicine.
- **Ann Druyan**, writer/producer and CEO of Cosmos Studios, Ithaca, New York; co-author of the PBS series *Cosmos*; co-author (with Carl Sagan) of *Shadows of Forgotten Ancestors*, *Comet*, and other books; co-creator of the motion picture *Contact*; and co-writer of the full-dome multimedia planetarium feature "The Search for Life: Are We Alone?"
- **David J. Helfand**, Chair and Professor, Department of Astronomy, and Co-director, Columbia Astrophysics Laboratory, Columbia University; author of more than 150 scientific papers plus many popular articles on pulsars and neutron stars, X-ray astronomy, supernovas, superclusters, and the large-scale structure of the universe. He serves on NASA advisory and other professional committees, is active in public outreach and is recipient of the Columbia University Presidential Great Teacher Award.

* * *

IN ADDITION, three people have been elected CSICOP Scientific or Technical Consultants, in recognition of their work in science and skepticism.

The new Scientific or Technical Consultants are:

- **Taner Edis**, Assistant Professor of Physics, Truman State University, Kirksville, Missouri; author of *The Ghost in the Universe: God in Light of Modern Science*.
- **Bryan Farha**, Professor of Behavioral Studies in Education, Oklahoma City University; member of the CSICOP astrology subcommittee; critic of TV psychics' tactics and methods.
- **Luis Alfonso Gámez**, science journalist, *El Correo* newspaper, Bilbao, Spain; one of the founders of ARP-Society for the Advancement of Critical Thinking, the Spanish skeptic group, and first director of its magazine, *El Escéptico Digital*.

—*Kendrick Frazier*

## CSICOP Fellow Neil deGrasse Tyson Hosts *Nova* Miniseries

CSICOP Fellow Neil deGrasse Tyson, director of the Hayden Planetarium in New York, will host "Origins," a four-part miniseries on the PBS science program *Nova*. The series will be broadcast on Tuesday and Wednesday, September 28 and 29, 2004, with two episodes airing each night.

The program will examine how life came to be in a universe that was born in chaos. Tyson is quoted in a press release from WGBH Boston, the PBS affiliate that produces *Nova*, as saying: "What makes the series unique is the attempt to bring to the public, really for the very first time, a synthesis of all the branches of science that have relevance to answering the question, 'What is the origin of our place in the cosmos?'"

A book titled *Origins: Fourteen Billion Years of Cosmic Evolution*, coauthored by Tyson with science writer Donald Goldsmith, will be released simultaneously with the premiere of the series.

## Pinker, Tarter Named Among *Time*'s 100 Most Influential People

CSICOP Fellows Steven Pinker and Jill Tarter were chosen among the 100 most influential people in the world by *Time* magazine. This special section titled "The People Who Shape Our World Today" and subtitled "Our list of those whose power, influence, or moral examples touches the lives of all of us, right now," was published in the April 26, 2004, issue.

Pinker and Tarter were described under the category "scientists and thinkers," which also included genome pioneer Eric Lander, Supreme Court Justice Sandra Day O'Connor, "Green contrarian" Bjorn Lomborg, superstring theorist Edward Witten, "sage of reason" philosopher-sociologist Jurgen Habermas, and thirteen others.

Pinker, a Harvard psychologist, was cited for his work describing how our minds evolved and his ability, "rare among top-tier scholars . . . to convey complex ideas with clarity, flair, and wit. . . . That's one reason his books—most recently *The Blank Slate* [excerpted in the March/April 2003 SI] make best-seller lists even as they make waves in academia."

Tarter, an astronomer and director of research at the SETI [Search for Extraterrestrial Intelligence] Institute in Mountain View, California, is at the forefront of searching the cosmos for any signals from extraterrestrial civilizations. With the help of a $25 million endowment from Microsoft co-founder Paul Allen, she and her colleagues are developing a new radio telescope array—a collection of up to 350 steerable, electronically integrated dish antennas. □

# New Future Fund

CENTER FOR INQUIRY

Outpacing its origins as a dissenting publisher, today's Center for Inquiry (CFI) movement has emerged as an **educational resource, think tank, and advocacy organization.** We have a bold plan to advance *critical thinking, freedom of inquiry,* and the *scientific outlook* through *research, publishing, education, advocacy,* and *social services.*

### *As before, CFI:*

- Supports the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) and the Council for Secular Humanism.
- Operates the world's premier freethought and skeptical libraries.
- Offers distinguished adult education programs through the Center for Inquiry Institute.

### *But, the Center needs to reach out in new ways ... tackling new problems, exerting influence.*

That's why the Center for Inquiry's **New Future Fund** seeks millions of new dollars for program needs, capital expansion, and endowment.

### *Your New Future Fund Gift Can Support:*

**Independent Publications.** Besides aiding *Free Inquiry* and *Skeptical Inquirer,* CFI publishes the independent *American Rationalist; two important journals, The Scientific Review of Alternative Medicine* and *The Scientific Review of Mental Health Practice;* and skeptical magazines serving the UK and the Spanish-speaking world.

**Branch Centers Across the United States and the World**

**Amherst, New York (HQ):** We increased library space 30 percent and are beginning plans for a major new addition.

**Hollywood, California:** Renovation of our 9,000-square-foot Center for Inquiry – *West* is complete. There, a new National Media Center will reach out to — and critically examine — the entertainment media. The 99-seat Steve Allen Theater will also serve as a television production facility.

**New York, New York:** Our Center for Inquiry – *Metro New York* in Rockefeller Center reaches out to the nation's financial, intellectual, and news media centers, while facilitating local activities throughout the metro area.

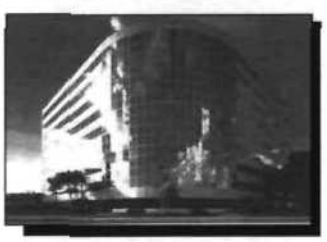
**Tampa Bay, Florida:** Center for Inquiry – *Florida* offers a stimulating menu of programs and activities while it searches for permanent quarters.

**International Centers:** in a bold program expansion, new Centers for Inquiry now operate in Russia, Mexico, Peru, Nigeria, Germany, France, and Nepal, doing vital work in defense of the open society. We plan further expansion into countries with little or no exposure to humanism.

Center for Inquiry-*Transnational,* Amherst, NY

Center for Inquiry-*West,* Los Angeles, CA

Center for Inquiry-*Metro NY,* at Rockefeller Center



Center for Inquiry-*Florida, Tampa Bay*

**Please complete and mail the enclosed card for further information.**

Or contact:
Center for Inquiry – *Transnational*
PO Box 741, Amherst NY 14226-0741
(716) 636-4869, ext. 311
e-mail: development@centerforinquiry.net
http://www.centerforinquiry.net

**This is just part of our plans.** The New Future Fund will make CFI more self-sufficient and lessen dependence on publishing revenues. Please support our efforts. We seek gifts of **cash, multiyear pledges, negotiable securities, paid-up insurance policies,** and **other assets.** Our Development Department can assist you in confidence to design a planned giving program that can benefit yourself and your heirs while supporting the Center's growth.

# REACH OUT TO A NEW FUTURE!

The Center for Inquiry, the Council for Secular Humanism, and the Committee for the Scientific Investigation of Claims of the Paranormal are 501(c)(3) tax-exempt charitable organizations. Gifts are fully tax-deductible as provided by law.

# Ships of the Dead

Ghosts and ships seem to go together in the popular imagination, combining the romance of the sea with the spine-tingling lure of hauntings. (See, for example, Horace Beck's *Folklore and the Sea*, 1999, and Richard Winer's mystery-mongering *Ghost Ships*, 2000.)

## Phantom Ships

There are beguiling reports of phantom vessels, most linked to shipwrecks and other disasters. In folklore such ghostly craft are widespread, often as a motif called the Ship of the Dead, which serves to transport spirits to the afterworld (Guiley 2000, 283–284, 343).

The most famous of the spectral ships is the *Flying Dutchman*, an early legend of which appeared in an English magazine of 1821. In that version, the ship's captain having refused to put into harbor during a fierce storm—indeed, even challenging God to sink the vessel—is visited by a glowing form. He attempts to shoot it with his pistol but the gun blows up in his hand, and the entity dooms the captain to sail the seas forever.

A source for the tale—which exists in several variants, thus indicating the process of folklore—suggests its origin may lie in the exploits of a seventeenth-century Dutch mariner, Bernard Fokke. So daring were some of Captain Fokke's voyages that there were whispers about supernatural aid—the rumors intensifying when his ship vanished during one voyage (Cohen 1984, 273–276; Beck 1999, 390–395).

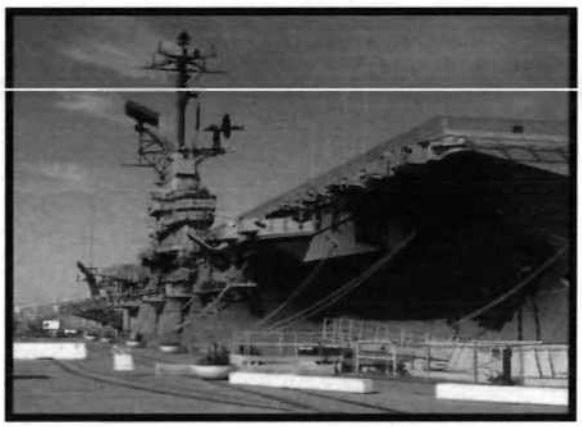


Figure 1. The "haunted" aircraft carrier, USS *Hornet*, is a floating museum at Alameda, California. (Photos by Joe Nickell)

I once investigated a historic phantom-ship case, that of a fiery spectral vessel reported in Nova Scotia's Mahone Bay. It supposedly resulted from a privateer's ship, the *Young Teazer*, having been set ablaze in 1813 and all hands perishing. The phenomenon—known as the Teazer Light—was almost always observed on foggy nights about the time of a full moon.

I conducted a vigil for the specter at such a time in 1999 but it was a no-show. I later came upon the revealing account of one who had witnessed the fiery ship, only to discover that what he had actually seen was the moon rising behind a bank of fog. The illusion convinced him that that was the explanation for previous sightings of the spectral *Teazer* (Nickell 2001a, 188–189).

Other explanations for wraith ships include actual vessels being seen through foggy, rainy, or snowy atmosphere. According to Beck (1999, 390), ". . . a ship or even part of her could well be sighted by a lookout and neither seen nor heard by anyone else, or her horn could be heard by only one person—suggesting that it was a spirit ship they had encountered." He adds: "There can be little doubt that anxious hours spent peering into fog and snow will cause seamen to see and hear almost anything they wish. Moreover, thick weather has a tendency to distort objects into outlandish shapes."

Mirage effects, outright pranks, and many other factors may contribute to reports of phantom ships, including the

*Joe Nickell is a former private detective and author of numerous investigative books including* Crime Science *and* Real-Life X-Files.

occasional encounter of abandoned vessels and derelicts (Beck 1999, 390).

## Haunted *Queen Mary*

In addition to spirit ships, there are numerous otherwise ordinary vessels that are reputedly haunted. Prominent among them is the *Queen Mary*, the former ocean liner that since 1971 has been permanently docked at Long Beach, California. This historic liner is now essentially a floating inn, and I have been among its many overnight guests. Nocturnal encounters with spirits are among the reported phenomena on board.

One woman recalled: "I awoke from a deep sleep around midnight. I saw a figure walking near my daughter's sleeping bag toward the door. I called out. There was no answer. It was then that I noticed my sister was lying next to me. I sat up in bed and watched the person in white walk through the door!" (Wlodarski et al. 1995, 33).

This is an obvious example of a "waking dream," actually a type of hallucination that occurs in the twilight between being fully asleep and fully awake. Such experiences typically include bizarre imagery, such as ghosts, angels, aliens, etc. The encounters can seem quite real, and the person will typically insist that he or she was not dreaming (Baker and Nickell 1992, 226–227).

Of course, not all ghost sightings can be explained by waking dreams, many in fact occurring during normal waking activity. Consider the report of "J.M.," who was at the *Queen Mary*'s purser desk when, he stated, "I caught a brief glimpse out of the corner of my eye, of someone or something moving," or like that of "P.T.," who said, "I saw something move out of the corner of my eye . . . a brief glimpse of someone or something" (Wlodarski 1995, 32, 36). Actually, the illusion that something is moving in the peripheral vision is quite common, and it or a different stimulus—a noise, subjective feeling, etc.—might trigger a mental image. In certain especially imaginative individuals, this might be superimposed upon the visual scene—somewhat like a mental version of a photographic double exposure—thus creating a seemingly apparitional event (Nickell 2001a, 290–291).

During my more than three decades of ghostbusting I have noticed that some people have more frequent and more intense ghostly experiences than others. For instance, such events on the *Queen Mary* "happened with greater frequency" for a particular female employee. Reportedly, another frequent percipient "actually *likes* the idea of spending time with the spirits" (Wlodarski 1995, 49, 50). Some data I have acquired over the years, utilizing a questionnaire, show that as the level of haunting experiences rises so does the person's "fantasy scale" (a correlation discussed later on under "Star of India").

Figure 2. The three-masted *Star of India* is "the oldest active sailing ship in the world" and reportedly has stowaway spirits.

## Aircraft Carrier *Hornet*

Anchored at Alameda, California, the USS *Hornet* was commissioned in 1943 and saw impressive action during World War II in the Pacific Theater. It steamed 150,000 miles, survived fifty-nine attacks, and shot down 668 enemy aircraft, destroying another 742 on the ground. It later served in the Vietnam war and became the major recovery ship for the Apollo 11 and 12 Lunar Landing Missions.

Decommissioned in 1970, the *Hornet* was mothballed, then sold for scrap in 1993. However it was saved four years later by a foundation that converted it into a museum (Merideth 2001, 85–99, 232). (See figure 1.)

Crewmen had dubbed the warship the "Gray Ghost"—apparently because earlier carriers bearing the same name had been sunk, and because its gray color caused it to blend into hazy backgrounds (Merideth 2001, x). The moniker may have helped inspire notions that the carrier is haunted.

"Paranormal activity" has been reported since mid 1995 (Haunting 2004), when members of the public began to be invited on board. In time, press releases would begin to promote the carrier as a "Ship of Spirits" (2001), while seeking funds to help with restoration efforts. Halloween offered a special opportunity to capitalize on the popularity of ghosts, with a "Monster Bash aboard the Gray Ghost" (2001) drawing costumed visitors at twenty-five dollars each. A flyer advertising overnight stays for young people promised, among many offerings, "real ghost stories"—all for a bargain rate of fifty dollars per child (Don't n.d.).

Such promotion efforts have been aided by ghost hunter Loyd Auerbach and local spirit "medium" Aann Golemac. Auerbach, who uses a magnetometer in pseudoscientific fashion as a ghost detector (*Best* 2001), claims spirits aboard the warship have patted him on the back (Knight 2001), although this could be merely imagined self congratulation.

Golemac has visited the *Hornet* several times and insists it is filled with spirits. She asserts, "When we leave our bodies, we can go back and visit the places that were important to us" (Knight 2001). Actually, there is no scientific proof for that assertion, but Golemac is undaunted: "If a person is skeptical, then they [*sic*] are just in denial" (Reports 2004).

I may be one of the skeptics she has in mind. Investigating on board the aircraft carrier with colleague Vaughn Rees, I found nothing to suggest that there are any odd entities on the USS *Hornet* other than, well, haunted people.

Many reputedly paranormal occurrences on the ship are merely unidentified

noises—countless sources of which exist on such a rambling, old, metal ship (Hull 2000). A man sleeping aboard one night who felt something tugging at him was probably experiencing a "waking dream"; he admitted being unsure whether or not he was awake (*America's* 2003). Many seemingly real experiences, as I explained on a television documentary regarding the *Hornet*, may actually be illusory. And once the idea of a ghost attaches itself to a place, then anything unusual that happens there is considered evidence of haunting (*Best* 2001).

A climate of ghost promotion not only intensifies the effects of suggestion, but it can invite outright pranking, as I have learned firsthand at many sites over the years. I suspect pranks have occurred on the USS *Hornet*. For example, the reported fall of a wrench during one overnight session (Nickell 2001b) may have been part of ghostly theatrics intended to spook a youth group. I find it ironic when a volunteer tour guide states, "The spirits are real pranksters" (Hull 2001).

In contrast to some who report ghostly shenanigans, there are disbelievers who have no paranormal experiences, including one man who had served as a docent on the *Hornet* for two years. He suggested to us that those who experience ghosts do so because they are believers (Nickell 2001b).

## Star of India

Moored in San Diego's harbor is the three-masted, black-hulled ship, *Star of India* (see figure 2).

Christened *Euterpe* and launched in 1863 from the Isle of Man, the ship sailed for thirty-five years under the British flag. She brought Indian jute to England, transported European emigrants to New Zealand and Australia, and carried sugar from Hawaii to San Francisco. Before becoming an Alaskan salmon-fishing vessel in 1898—by then rechristened *Star of India*—she experienced many troubling incidents, including collisions, a nonviolent mutiny, and several deaths of crew members and passengers (Lamb 1991).

Towed to San Diego in 1927 to become a floating museum, she suffered neglect through the Great Depression, World War II, and beyond. Restoration was finally completed in 1976 and she is now "the oldest active sailing ship in the world." Sometime along the way—apparently in the 1920s after she was retired—*Star of India* allegedly acquired some ghostly residents (Lamb 1999).

Figure 3. A "ghost," sporting a bloody bandage, is all dressed up for Halloween aboard *Star of India*.

In October 2001—accompanied by a group of local skeptics (including Keith Taylor), a newspaper reporter, and a television crew—I boarded the *Star* for a private nighttime pre-Halloween investigative tour.

On board were unmistakable "ghosts"—each dressed in a period costume for the occasion. Three scenes—each supposedly reflecting a real, recorded tragedy aboard the *Star of India*—were dramatized. These "scary yarns" (as the local newspaper dubbed them [LaFee 2001]) told about a lad who fell from atop the main mast, a Chinese sailor who was crushed by the ship's heavy anchor chain, and (figure 3) a drunken immigrant who committed suicide by slashing his throat.

But do the ghosts of these tragic figures indeed haunt the *Star*? Answers depend on which persons one talks to. Some crew members were dismissive of any ghosts, while others had experiences to relate—the same dichotomy reported by John J. Lamb, author of *San Diego Specters*, in a chapter titled "The Spectral Stowaway: The Haunting of *Star of India*" (1999). Lamb quoted Ditler as stating: "All ships are haunted, but some more than others. *Star of India* has a very special atmosphere. I'm not prone to flights of imagination, but if you stand on the decks you can't help but sense the spirits of the seamen and passengers who sailed on her."

As a poet, I understand these feelings, although I would replace the verb *sense* with *imagine*. To study the different persons' experiences on the *Star of India*, I handed out copies of my "Ghost Encounters Questionnaire," seven of which I received back. The experiences related were similar to others reported aboard the ship (Lamb 1999) and indeed at other "haunted" places.

There were descriptions of eerie chills, feelings of ghostly presences, and the like—all of which are easily attributable to subjective impressions. As I told a reporter (LaFee 2001), some places—particularly those imbued with history and even having a reputation as haunted—possess an "ambiance" that can inspire such feelings.

A few experiencers reported hearing unexplained sounds. For instance, one man "heard chains down in the orlop" (i.e., the orlop deck, the lowest deck of a ship). Another, on a calm morning, heard a "sloshing" in a fresh-water tank; it stopped when he fetched a shipmate, but resumed after the latter left, shaking his head. ("I found something to do elsewhere," the man confessed.) Perhaps these incidents had some real but unnoticed cause (e.g., the wind rattling something in the first instance, or a sea creature splashing in the latter). If not, the sounds may have been merely mental impressions, familiar ship sounds surfacing from memory.

My limited number of respondents did exhibit a good range of experiences (extending from one person with no ghostly encounters to others having "low," "medium," and "high" levels). As had my previous studies (Nickell 2001a, 84–85, 299), the responses demonstrated a correlation between the individuals' level of ghost experiences and the number of traits a respondent possesses

that are associated with a propensity to fantasize [Wilson and Barber 1983]).

With the *Star of India*, as with other reputedly haunted sites, it appears it is not the *places*—but rather the *people*—that are haunted.

## USS *The Sullivans*

The destroyer USS *The Sullivans* was named for five brothers of Waterloo, Iowa—George, Francis, Joseph, Madison, and Albert Sullivan—who had enlisted in the Navy and together served aboard a light cruiser, USS *Juneau*. In late 1942, the cruiser was sunk by a torpedo from a Japanese submarine, killing most of the sailors on board. George Sullivan survived, only to succumb soon afterward (Sullivans n.d.).

President Franklin D. Roosevelt directed that one of the new destroyers under construction be named for the five brothers—the only Navy destroyer ever to bear the name of more than a single person. USS *The Sullivans* was launched at San Francisco on April 4, 1943, sporting an Irish shamrock on her forward stack. She fought in the Philippines and elsewhere in World War II, and later served during the Korean War and the Cuban Blockade, as well as assisting with rescue efforts for the nuclear submarine USS *Thresher*. Decommissioned in 1965, *The Sullivans* arrived for display in Buffalo, New York, in 1977 and, in 1986, was designated a National Historic Landmark. (Her famous name has been passed on to another destroyer.) (USS n.d.)

Following a familiar pattern, ghost claims became attached to *The Sullivans* only after it was mothballed. Workers, guards, and guides—often unnamed and cited at second hand—began to report strange incidents that were supposedly "unexplained" and *therefore* indicated a ghostly cause. But such reasoning represents a logical fallacy called arguing from ignorance; one cannot draw a conclusion from a lack of knowledge. Besides, incidents might be unexplained yet not *unexplainable*. For example, apparitions could just be tricks of the mind, and other incidents (like one of a "flying wrench") might be explained as misperceptions or outright pranks.

Pranks seem especially worth considering when we are told that the spirit antics occur "especially on Friday the thirteenth" (Hauck 1996). This source

Figure 4. Mysterious blurring of one of the five Sullivan brothers' pictures—aboard their namesake ship—is duplicated in this experimental photo.

(which refers to the destroyer erroneously as "The USS *Sullivan*") fails to explain why that date would be so significant. In fact, the Sullivan brothers' ship was torpedoed on November 13, 1942—a Friday.

However, friggatriskaidekaphobes (superstitious folk who fear Friday the thirteenth [Christopher 2004]) should recall that it was USS *Juneau*, not USS *The Sullivans*, that was the brothers' death ship. They were never aboard the destroyer. Moreover, there is no credible evidence that Fridays falling on the thirteenth of a month represented jinxed dates for the United States Navy. Therefore, if those days saw more "ghost" incidents aboard USS *The Sullivans* than other days, that might only suggest that pranking was a possible explanation. Spooky dates, like Halloween, can invite certain people to engage in "Boo!" type behavior.

In any case, the Friday-the-thirteenth link seems no longer to exist. The "haunting" of the ship appears also in decline; ghosts were not mentioned in the brochures and flyers I obtained on a visit. A docent on the ship told intern Dawn Peterson and me that he had no ghostly experiences on board, although he had worked there for six years (Bart 2003).

To me at least, the most interesting phenomenon reported aboard *The Sullivans* concerns a room (Area 43) designated "Sullivan Bros. Memorial" with framed photographs of each of the five brothers. According to a television documentary, *Haunted History: New York*; (2000), whenever one takes a snapshot of the row of pictures, four of them appear normal while that of George is indistinct: rendered as "a big blur of light."

Dawn Peterson and I conducted several experiments with the photos and were able to duplicate the effect shown on the documentary. If one stands squarely in front of the photos, since George's picture is in the center its glass reflects the camera's flash to produce the blurring. That the glass is the non-glare type helps soften the reflection, producing a more diffuse, more mysterious effect.

Among other historic ships, USS *The Sullivans* appears no more haunted than any other—that is, not at all.


## Acknowledgements

I am grateful to Tim Binga and John Gaeddert for their research assistance.


## References


*America's Most Haunted.* 2003. Travel Channel, January 5.

Baker, Robert A., and Joe Nickell. 1992. *Missing Pieces: How to Investigate Ghosts, UFOs, Psychics & Other Mysteries.* Buffalo, N.Y.: Prometheus Books.

Bart, John. 2003. Interview by Joe Nickell, June 24.

Beck, Horace. 1999. *Folklore and the Sea.* Edison, N.J. : Castle Books.

*Best Kept Secrets of the Paranormal.* 2001. The Learning Channel, September 23.

Christopher, Kevin. 2004. Horrified by Friday the 13th? Press release of the Committee for the Scientific Investigation of Claims of the Paranormal, February 10.

Cohen, Daniel. 1984. *The Encyclopedia of Ghosts.* New York: Dorset Press.



*SHIPS OF THE DEAD*
*Continued on page 64*

MASSIMO PIGLIUCCI

# Did Popper Refute Evolution?

The neo-Darwinian theory of evolution is the currently accepted paradigm to explain the history and diversity of life on Earth. Yet ever since the publication of Darwin's *Origin of Species* in 1859, the theory has been under attack on a variety of grounds. Readers of SI are familiar with standard creationist nonsense, as well as with the slightly more sophisticated sophistry of "intelligent design" proponents. Some of the criticisms of evolutionary theory have been put forth in the professional philosophical arena, where serious scholars have often accused it of being incoherent or logically fallacious.

Perhaps the best-known philosophical criticism of evolution was put forth by Karl Popper, who once claimed that "Darwinism is not a testable scientific theory, but a metaphysical research program" (*Unended Quest*, 1976). Popper famously retracted his comments once it was explained to him that there was quite a bit more to the theory than he had understood from a cursory examination of the subject: "I have changed my mind about the testability and logical status of the theory of natural selection; and I am glad to have an opportunity to make a recantation" (*Dialectica* 32:344–346).

*Massimo Pigliucci is a professor of evolutionary biology at SUNY-Stony Brook on Long Island and author of* Denying Evolution: Creationism, Scientism and the Nature of Science. *His essays can be found at www.rationallyspeaking.org.*

Besides being an impressive example of a famous scholar admitting in public that he was wrong (when was the last time a creationist has done that?), the episode is important for two reasons. First, it is interesting to understand where Popper's original criticism came from; second, it is crucial to realize exactly why he recanted. One of Popper's chief interests in philosophy of science was the so-called demarcation problem, something very dear to skeptics. The problem consists of identifying the criteria that separate science from pseudoscience. Popper took, not surprisingly, physics and astronomy to be quintessential examples of good science. On the other hand, he considered Marxist history, Freudian psychoanalysis, and astrology as examples of pseudoscience. The task, then, could be rephrased in terms of pinning down what distinguishes these two groups of theories. As it turns out, Popper's approach was vitiated by his failure to appreciate the heterogeneity intrinsic in both the categories of "science" and "pseudoscience," i.e., in the fact that not all science (or pseudoscience) is created equal, operates by the same criteria, and can therefore be defined in similar manner. But I will return to that topic in a future column.

As far as we are concerned here, Popper proposed his famous criterion of falsification to solve the demarcation problem: good science is done when hypotheses can be shown to be false (if they indeed are). That's where the philosopher's criticism of evolutionary theory originated from. Popper understood evolutionary biologists to say that their theory predicts that natural selection allows only the fittest organisms to survive; but, he countered, the "fittest" organisms are *defined* as those who survive, which makes the statement tautological. Now, in philosophy being a tautology isn't necessarily a bad thing: after all, tautologies are the bread and butter of logic and mathematics—in the sense that one logically deduces consequences from premises that are taken as given, like definitions—and consider how many interesting things have come out of both logic and mathematics. That is why Popper initially concluded that, though tautological, evolutionary theory was a useful "metaphysical" (in the philosophical, not religious, sense) program, i.e., an overarching idea that could provide a powerful framework to interpret the biological world. But, as in the case of Freudian psychoanalysis or Marxist history, it wasn't good science.

Why, then, did the Austrian philosopher change his mind? Because it turns out that while it is true that evolutionary biologists predict (i.e., deduce) the

*DID POPPER REFUTE EVOLUTION?*
*Continued on page 40*

# Lady Homeopathy Strikes Back . . . But Science Wins Out

On July 11, 2000, *Superquark*, a popular Italian prime-time science program, presented a short segment highly critical of homeopathy. Leading scientists and medical experts explained that homeopathy has no scientific basis, that risks from treatment with such unconventional medicines are significant for patients who are suffering from serious illnesses, and that the benefits of homeopathy are due to the placebo effect. These arguments are well known to SKEPTICAL INQUIRER readers.

Piero Angela, the program's host (as well as its creator and producer), is the leading scientific journalist in Italy. He was also the first journalist in Italy, in 1977, to present a series of TV shows highly critical of parapsychology, on which James Randi and various members of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) received a lot of attention.

The series became so popular that it even inspired famous Italian comedian Alberto Sordi to create a Piero Angela-like character for his movie *Sono un fenomeno paranormale* (*I'm a Paranormal Phenomenon*).

It also inspired Angela to start an Italian version of CSICOP, an organization which came to be called CICAP, the Italian Committee for the Investigation of Claims of the Paranormal.

*Massimo Polidoro is an investigator of the paranormal, author, lecturer, and cofounder and head of CICAP, the Italian skeptics group. His Web site is www.massimo polidoro.com.*

Since then, *Superquark* has presented the scientific point of view on many paranormal and pseudoscientific subjects. This time, however, there was not only science at stake but also money. Millions of Italians use homeopathic products, and the homeopathists claimed that the broadcast was unfair and could threaten their businesses. The Catania-based Italian Association of Medical Homeopathy and the Rome-based Italian Federation of Associations of Medical Homeopathy complained that Angela selected only interviewees who were critical of homeopathy. So they brought two lawsuits, one civil and one criminal, against Angela and his co-author Giangi Poli.

"We are dealing with Lady Homeopathy here," said Giulia Bongiorno, Angela's lawyer, "since it has never happened in Italy that a criminal suit was brought against someone accused of defaming not a person but a remedy, an abstract concept."

Angela immediately received strong backing from the scientific community, including letters and statements from individual researchers including Nobel Prize winners Renato Dulbecco, who has called all homeopathic products "worthless concoctions," and Rita Levi-Montalcini, who said that "the greatest damage of this so-called therapy is that it deludes patients."

"You have to understand," says Angela, "that Italian public-television archives show that fourteen times more programs had been broadcast advocating homeopathy than criticizing it. My program only sought to redress the imbalance. I don't think that my job is to tell viewers what they want to hear. Science is not like philosophy, where viewers can listen to both sides and decide for themselves. Science cannot be decided on by the vote of viewers."

The July 19, 2001, issue of *Nature* reported that one of

the guests on Angela's show was Antonio Cassone, head of the department of bacteriology at Italy's national health institute—and who is also a member of the ministry of health's ad hoc committee on homeopathy.

On the show, Cassone merely offered the opinion that safety information should be provided on all homeopathic products and that efficacy information should be provided on anything that is to be ingested. "I would have had no objection to a homeopathist sharing the show," he says in *Nature*, "because it would have been even more convincing to the viewers that arguments of homeopathists against providing information are untenable." But he fully supports the way Angela produced his program.

The case went to court in the autumn of 2001, and it took over three years to be settled. Finally, on May 20, 2004, the court presented a fifty-nine page, highly detailed judgment confirming that homeopathy has no scientific validity. What was said on the show, the judgment states, "falls within the right to fair comment and criticism and cannot in any way be considered offensive or defamatory, as it merely gives an account of a situation which is perfectly true."

It is the first time that a court has handed down a judgment on this topic, which for years has been at the center of heated debate between the international scientific community and the supporters of homeopathy.

Judge Cinzia Sgró wrote that "Science, in fact, is not a matter of mere categories of opinion. In the scientific field, either something is, or it is not. Either a treatment works, or it doesn't. And if it works, it is necessary to demonstrate that fact with clear scientific findings backed up by a solid statistical base. Although the international scientific community has always requested such scientific evidence from homeopathic medicine, it has never received attestation of its validity. It is completely devoid of any such foundation, remaining substantially an 'emotional medicine.'"

Piero Angela was, of course, the defendant, but the real accused appeared to be homeopathy itself.

Although the judgment affirms that it is not the task of the court to enter into the question of the validity of homeopathic medicine, given that Angela was charged with criminal defamation, the judge had to conduct an investigation into homeopathy in order to ascertain whether this therapy could be equated with traditional medicine.

Based on the court's investigation, it was determined that Piero Angela bore no obligation to give a voice on his program to the homeopaths insofar as *Superquark* is a scientific program. The criticisms formulated in the course of the broadcast were considered justified, highlighting the fact that homeopathy does not have scientific validity. In that respect, one could say that Piero Angela was acquitted, while homeopathy was found guilty.

"The fundamental problem of homeopathy," says Stefano Cagliano, the scientific adviser to Angela during the process, "is in its efficacy. The possible risk is not in an incidental toxicity but in the fact that some may prefer a homeopathic remedy instead of a proved cure."

This kind of attention is an attitude that *Superquark* has constantly presented toward all kinds of useless medicines and not only toward alternative remedies. "The first rule of science," comments Angela, "is that you have to prove what you claim, and in court, we said that had we acted differently, it would have delegitimized us in the view of the scientific community. I think we did a public service and our program on homeopathy falls within the many shows on prevention that we have done so far."

This judgment arrives at a time when homeopathy and other so-called unconventional therapies are at the center of a project of law being discussed in the Health Commission of Italy's Chamber of Deputies. The plan would be to give full equality to these therapies, with the institution of chairs covering the subject in public universities. Many academic and scientific groups have taken up positions against such a project, including the Italian National Bioethics Committee. □


## THE SCIENTIFIC REVIEW OF MENTAL HEALTH PRACTICE

***The Scientific Review of Mental Health Practice*** is an interdisciplinary journal that examines the evidence (or lack thereof) for a host of untested and disproved therapies and assessment techniques being popularized by sensational stories in the lay media, radio talk shows, and in countless self-help books.

Subscribe today! Get a one-year subscription (2 issues) for $60 for individuals in the U.S. and Canada, $70 for individuals overseas, or $100 for institutions in the U.S. and abroad.

Here are three easy ways to subscribe to ***SRMHP***:

1. Call **(800) 818-7071** to place a credit card order
2. E-mail your order with your American Express, Visa, or MasterCard number to **SRMHPsubs@yahoo.com**
3. Send your check made out to Center for Inquiry to: **SRMHP, Center for Inquiry, P.O. Box 741, Amherst, NY 14226-0741**

# Can the Sciences Help Us to Make Wise Ethical Judgments?

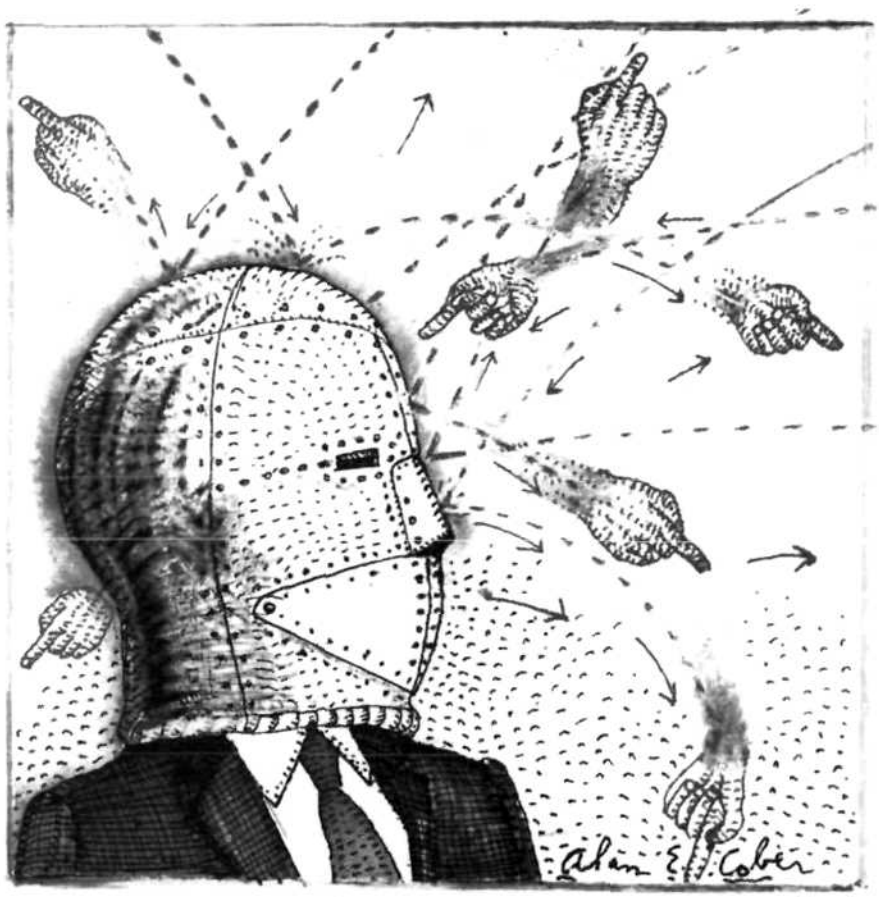
*Scientific knowledge has a vital, if limited, role to play in shaping our moral values and helping us to frame wiser judgments. Ethical values are natural and open to examination in the light of evidence and reason.*

PAUL KURTZ

## I.

Can science and reason be used to develop ethical judgments? Many theists claim that without religious foundations, "anything goes," and social chaos will ensue. Scientific naturalists believe that secular societies already have developed responsible ethical norms and that science and reason have helped us to solve moral dilemmas. How and in what sense this occurs are vital issues that need to be discussed in contemporary society, for this may very well be the hottest issue of the twenty-first century.

Dramatic breakthroughs on the frontiers of science provide new powers to humans, but they also pose perplexing




moral quandaries. Should we use or limit these scientific discoveries, such as the cloning of humans? Much of this research is banned in the United States and restricted in Canada. Should scientists be permitted to reproduce humans by cloning (as we now do with animals), or is this too dangerous? Should we be allowed to make "designer babies?" Many theologians and politicians are horrified by this; many scientists and philosophers believe that it is not only inevitable but justifiable under certain conditions. There were loud cries against in vitro fertilization, or artificial insemination, only two generations ago, but the procedure proved to be a great boon to childless couples. Many religious conservatives are opposed to therapeutic stem-cell research on fetal tissues, because they think that "ensoulment" occurs with the first division of cells. Scientists are appalled by this censorship of scientific research, since the research has the potential to cure many illnesses; they believe those who oppose it have ignored the welfare of countless numbers of human beings. There are other equally controversial issues on the frontiers of science: Organ transplants—who should get them and why? Is the use of animal organs to supply parts for human bodies wrong? Is transhumanism reforming what it means to be human? How shall we control AIDS—is it wicked to use condoms, as some religious conservatives think, or should this be a high priority in Africa and elsewhere? Does global warming mean we need a radical transformation of industry in affluent countries? Is homosexuality genetic, and if so, is the denial of same-sex marriage morally wrong? How can we decide such questions? What criteria may we draw upon?

## II.

Many adhere today to the view that ethical choices are merely relativistic and subjective, expressing tastes; and you cannot disputes tastes (*de gustibus non disputandum est*). If they are emotive at root, no set of values is better than any other. If there is a conflict, then the best option is to persuade others to accept our moral attitudes, to convert them to our moral feelings, or, if this fails, to resort to force.

Classical skeptics denied the validity of all knowledge, including ethical knowledge. The logical positivists earlier in the twentieth century made a distinction between fact, the appropriate realm of science, and value, the realm of expressive discourse and imperatives, claiming that though we can resolve descriptive and theoretical questions by using the methods of science, we cannot use science to adjudicate moral disputes. Most recently, postmodernists, following the German philosopher Heidegger and his French followers, have gone further in their skepticism, denying that there is any special validity to humanistic ethics or indeed to science itself. They say that science is merely one mythological construct among others. They insist that there are no objective epistemological standards; that gender, race, class, or cultural biases likewise infect our ethical programs and any narratives of social emancipation that we may propose. Who is to say that one normative viewpoint is any better than any other, they demand. Thus have many disciples of multicultural relativism and subjectivism often given up in despair, becoming nihilists or cynics. Interestingly, most of these well-intentioned folk hold passionate moral and political convictions, but when pushed to the wall, will they concede that their own epistemological and moral recommendations likewise express only their own personal preferences?

The problem with this position is apparent, for it is impaled on one horn of a dilemma, and the consequence of this option is difficult to accept. If it is the case that there are no ethical standards, then who can say that the Nazi Holocaust and the Rwandan, Cambodian, or Armenian genocides are evil? Is it only a question of taste that divides sadists and masochists on one side from all the rest on the other? Are slavery, the repression of women, the degradation of the

*Paul Kurtz is a professor emeritus at the State University of New York at Buffalo, and chairman of the Center for Inquiry–Transnational.* *This article is a portion of the keynote address delivered at the conference on "Science and Ethics" sponsored by the Center for Inquiry in Toronto, Ontario, on May 13, 2004.*

environment by profit-hungry corporations, or the killing of handicapped people morally impermissible, if there are no reliable normative standards? If we accept cultural relativity as our guide, then we have no grounds to object to Muslim law (*sharia*), which condones the stoning to death of adulteresses.

## III.

What is the position of those who wish to draw upon science and reason to formulate ethical judgment? Is it possible to bridge the gap and recognize that values are relative to human interests yet allow that they are open to some objective criticisms? I submit that it is, and that upon reflection, most educated people would accept them. I choose to call this third position "objective relativism" or "objective contextualism"; namely, values are related to human interests, needs, desires, and passions—whether individual or socio-cultural—but they are nonetheless open to scientific evaluation. By this, I mean a form of reflective intelligence that applies to questions of principles and values and that is open to modification of them in the light of criticism. In other words, there is a Tree of Knowledge of Good and Evil, which bears fruit, and which, if eaten and digested, can impart to us moral knowledge and wisdom.

In what sense can scientific inquiry help us to make moral choices? My answer to that is it does so all the time. This is especially the case with the applied sciences: medicine, dentistry, nursing, pharmacology, psychiatry, and social psychology; and also in the policy sciences: economics, education, political science; and such interdisciplinary fields as criminology, gerontology, etc. Modern society could not function without the advice drawn from these fields of knowledge, which make evaluative judgments and recommend prescriptions. They advise what we ought to do on a contextual basis.

Nonetheless, there are the skeptical critics of this position, who deny that science per se can help us or that naturalistic ethics is possible. I think that those critics are likewise mistaken and that naturalism *is* directly relevant to ethics. My thesis is that an increase in knowledge can help us to make wiser decisions. By knowledge, I do not refer simply to philosophical analysis but scientific evidence. It would answer both the religionist, who insists that you cannot be moral unless you are religious, and the subjectivist, who denies there is any such thing as ethical knowledge or wisdom.

Before I outline this position, let me concede that the skeptical philosophical objections to deriving ethics from science have some merit. Basically, what are they? The critics assert that we cannot *deduce* ethics from science, i.e., what *ought to be* the case from what *is* the case. A whole series of philosophers from David Hume to the emotivists have pointed out this fallacy. G.E. Moore, at the beginning of the twentieth century, characterized this as "the naturalistic fallacy"[1] (mistakenly, I think).

But they are essentially correct. The fact that science discovers that something is the case factually does not make it *ipso facto* good or right. To illustrate: (a) Charles Darwin noted the role of natural selection and the struggle for survival as key ingredients in the evolution of species. Should we conclude, therefore, as Herbert Spencer did, that *laissez-faire* doctrines ought to apply, that we ought to allow nature to take its course and not help the handicapped or the poorer classes? (b) Eugenicists concluded earlier in the century that some people are brighter and more talented than others. Does this justify an elitist hierarchical society in which only the best rule or eugenic methods of reproduction be followed? This was widely held by many liberals until the fascists began applying it in Germany with dire consequences.

There have been abundant illustrations of pseudoscientific theories—monocausal theories of human behavior that were hailed as "scientific"—that have been applied with disastrous results. Examples: (a) The racial theories of Chamberlain and Gobineau alleging Aryan superiority led to genocide by the Nazis. (b) Many racists today point to IQ to justify a menial role for blacks in society and their opposition to affirmative action. (c) The dialectical interpretation of history was taken as "scientific" by Marxists and used to justify class warfare. (d) Environmentalists decried genetics as "racist" and thought that changes in species should only be induced by modifications of the environment. Thus, one has to be cautious about applying the latest scientific fad to social policy.

We ought not to consider scientific specialists to be especially gifted or possessed with ethical knowledge nor empower them to apply this knowledge to society—as B.F. Skinner in *Walden II* and other utopianists have attempted to do. Neither scientist-kings nor philosopher-kings should be entrusted to design a better world. We have learned the risks and dangers of abandoning democracy to those wishing to create a *Brave New World.* Alas, all humans—including scientists—are fallible, and excessive power may corrupt human judgment. Given these caveats, I nevertheless hold that *scientific knowledge has a vital, if limited, role to play in shaping our moral values and helping us to frame wiser judgments of practice*—surely more, I would add, than our current reliance on theologians, politicians, military pundits, corporate CEOs, and celebrities!

## IV.

How and in what sense can scientific inquiry help us?

I wish to present a modified form of naturalistic ethics. By this, I mean that ethical values are *natural*; they grow out of and fulfill human purposes, interests, desires, and needs. They are forms of preferential behavior evinced in human life. "Good," "bad," "right," and "wrong" relate to sentient beings, whether human or otherwise. These values do not reside in a far-off heaven, nor are they deeply embedded in the hidden recesses of reality; they are empirical phenomena.

The principle of naturalism is based on a key methodological criterion: We ought to consider our moral principles and values, like other beliefs, *open to examination in the light of evidence and reason and hence amenable to modification.*

We are all born into a sociocultural context; and we imbibe the values passed on to us, inculcated by our peers, parents, teachers, leaders, and colleagues in the community.

I submit that ethical values should be amenable to inquiry. We need to ask, are they reliable? How do they stack up comparatively? Have they been tested in practice? Are they consistent? Many people seek to protect them as inviolable truths,

immune to inquiry. This is particularly true of transcendental values based on religious faith and supported by custom and tradition. In this sense, ethical inquiry is similar to other forms of scientific inquiry. We should not presuppose that what we have inherited is true and beyond question. But where do we begin our inquiry? My response is, in the *midst* of life itself, focused on the practical problems, the concrete dilemmas, and contextual quandaries that we confront.

Let me illustrate by refer to three dilemmas. I do so not in order to solve them but to point out *a method of inquiry in ethics.* First, should we exact the death penalty for people convicted of murder? The United States is the only major democracy that still demands capital punishment. What is the argument for the death penalty? It rests on two basic premises: (a) A factual question is at issue: capital punishment is effective in deterring crime, especially murder; and (b) the principle of justice that applies is retributive. As the Old Testament adage reads, "Whatever hurt is done, you shall give life for life, eye for eye, tooth for tooth. . . ."[2]

**We should not block inquiry; we should not say that some moral principles are beyond any kind of re-evaluation or modification.**

The first factual premise can be resolved by sociological studies, by comparing the incidence of murder in those states and nations that have the death penalty in force and those that do not and by states and nations before and after the enactment or abrogation of the death penalty. We ask, has there been an increase or a decrease in murder? If, as a matter of fact, the death penalty does *not* restrain or inhibit murder, would a person still hold his view that the death penalty ought to be retained? The evidence suggests that the death penalty does not to any significant extent reduce the murder rate, especially since most acts of murder are not deliberate but due to passion or are an unexpected result of another crime, such as robbery. Thus, *if* one bases his or her belief in capital punishment primarily on the deterrence factor, and it does not deter, would one change one's belief? The same consideration should apply to those who are opposed to the death penalty: Would they change their belief if they thought it would deter excessive murder rates? These are empirical questions at issue. And the test of a policy are its consequences in the real world. Does it achieve what it sets out to do?

There are, of course, other factual considerations, such as: Are many innocent people convicted of crimes they did not commit (as was recently concluded in the State of Illinois)? Is capital punishment unfairly applied primarily to minorities? This points to the fact that belief in capital punishment is, to some extent, *a function of scientific knowledge concerning the facts of the case.* This often means that such measures should not be left to politicians or jurors alone to decide; the scientific facts of the case are directly relevant.

The second moral principle of retributive justice is far more difficult to deal with, for this may be rooted in religious conviction or in a deep-seated tribal sense of retaliation. If you injure my kin, it is said, I can injure yours; and this is not purely a factual issue. There are other principles of justice that are immediately thrown into consideration. Those opposed to the death penalty say that society "should set a humane tone and not itself resort to killing." Or again, the purpose of justice should be to protect the community from future crimes, and alternative forms of punishment, perhaps lifetime imprisonment without the right of parole, might suffice to deter crime. Still another principle of justice is relevant: Should we attempt, where possible, to rehabilitate the offender? All of the above principles are open to debate. The point is, we should not block inquiry; we should not say that some moral principles are beyond any kind of re-evaluation or modification. Here, a process of deliberation enters in, and a kind of moral knowledge emerges about what is comparatively the best policy to adopt.

Another example of the methods of resolving moral disputes is the argument for assisted suicide in terminal cases, in which people are suffering intolerable pain. This has become a central issue in the field of medical ethics, where medical science is able to keep people alive who might normally die. I first saw the emergence of this field thirty years ago, when I sponsored a conference in biomedical ethics at my university and could find very few, if any, scholars or scientists who had thought about the questions or were qualified experts. Today, it is an essential area in medicine. The doctor is no longer taken as a patriarchal figure. His or her judgments need to be critically examined, and others within the community, especially patients, need to be consulted. There are here, of course, many factual questions at issue: Is the illness genuinely terminal? Is there great suffering? Is the patient competent in expressing his or her long-standing convictions regarding his or her right to die with dignity? Are there medical and legal safeguards to protect this system against abuse?

Our decision depends on several further ethical principles: (a) the informed consent of patients in deciding whether they wish treatment to continue; (b) the right of privacy, including the right of individuals to have control of their own bodies and health; and (c) the criterion of the quality of life.

One problem we encounter in this area is the role, again, of transcendental principles. Some people insist, "God alone should decide life-and-death questions, not humans." This principle, when invoked, is beyond examination, and for many people it is final. Passive euthanasia means that we will not use extraordinary methods to keep a person alive, where there is a longstanding intent expressed in a living will not to

do so. Active euthanasia will, under certain conditions, allow the patient, in consultation with his physician, to hasten the dying process (as practiced in Oregon and the Netherlands). The point is, there is an interweaving of factual considerations with ethical principles, and these may be modified in the light of inquiry, by comparing alternatives and examining consequences in each concrete case.

**At issue are the questions of whether ensoulment makes any sense in biology and whether personhood can be said to have begun at such an early stage, basically a transcendental claim that naturalists object to on empirical grounds.**

I wish to illustrate this process again by referring to another issue that is hotly debated today: Should all cloning research be banned? The Canadian legislature, in March 2004, passed legislation that will put severe restrictions on such scientific research. The bill is called "An Act Respecting Assisted Human Reproduction" (known as C-56), and it makes it a criminal offense to engage in therapeutic cloning, to maintain an embryo outside a woman's body for more than fourteen days, to genetically manipulate embryos, to choose the gender of offspring, to sell human eggs and sperm, or to engage in commercial surrogacy. It also requires that in vitro embryos be created only for the purpose of creating human beings or for improving assisted human-reproductive procedures. Similar legislation was passed by the U.S. House of Representatives and is before the Senate. It is still being heatedly debated. It includes the prohibition of reproductive cloning as well as therapeutic stem-cell research. Two arguments against reproductive cloning are as follows: (a) It may be unsafe (at the present stage of medical technology) and infants born may be defective. This factual objection has some merit. (b) There is also a moral objection saying that we should not seek to design children. Yet we do so all the time, with artificial insemination, in vitro fertilization, and surrogate motherhood. We already are involved in "designer-baby" technology, with amniocentesis, pre-implantation, genetic testing, and chorionic villus sampling (the avoiding of unwanted genes by aborting fetuses and implanting desirable embryos).

If it were to become safe, would reproductive cloning become permissible? I can think of situations where we might find it acceptable—for example, if couples are unable to conceive by normal methods.

It is the second area I mentioned above that is especially telling—the opposition to any forms of embryonic stem-cell research. Proponents maintain that this line of research may lead to enormous benefits by curing a wide range of diseases such as Parkinson's disease, Alzheimer's, or juvenile diabetes. Adult stem cells are now being used, but embryonic stem cells may provide important new materials. The criterion here is consequential: that positive outcomes may result. Opponents maintain that this type of research is "immoral" because it is tampering with human persons possessed of souls. Under this interpretation, "ensoulment" occurs at the moment of conception. This is said to apply to embryos, many of which, however, are products of miscarriages or abortions. Does it also apply once the division of stem cells occurs? Surely a small collection of cells, which is called a *blastocyst*, is not a person, a sentient being, or a moral agent prior to implantation. Leon Kass, chair of President Bush's Council on Bioethics, believes that human life cannot be treated as a commodity and it is evil to manufacture life. He maintains that all human life, including a cloned embryo, has the same moral status and dignity as a person from the moment of conception.

This controversy pits two opposing moral claims: (a) the view that stem-cell research may be beneficent because of its possible contributions to human health (i.e., it might eliminate debilitating diseases) versus (b) an ethic of revulsion against tampering with natural reproductive processes. At issue here are the questions of whether ensoulment makes any sense in biology and whether personhood can be said to have begun at such an early stage, basically a transcendental claim that naturalists object to on empirical grounds. These arguments are familiar in the abortion debate; it would be unfortunate if they could be used to censor scientific stem-cell research.

This issue is especially relevant today, for transhumanists say that we are discovering new powers every day that modify human nature, enhance human capacities, and extend life spans. We may be able to extend memory and increase human perception and intelligence dramatically by silicon implants. Traditionalists recoil in horror, saying that post-humanists would have us transgress human nature. We would become cyborgs.

But we already *are*, to some extent: we wear false teeth, eyeglasses, and hearing aids; we have hair grafts, pacemakers, organ transplants, artificial limbs, and sex-change/sexual reassignment operations and injections; we use Viagra to enhance sexual potency or mega-vitamins and hormone therapy. Why not go further? Each advance raises ethical issues: Do we have the reproductive freedom and responsibility to design our children by knowing possible genetic disorders and correcting them before reproduction or birth?

## V.

This leads to an important distinction between two kinds of values within human experience. Let me suggest two possible sources: (a) values rooted in unexamined feelings, faith, custom, or authority, held as deep-seated convictions beyond question, and (b) values that are influenced by cognition and informed by rational inquiry.

Naturalists say that scientific inquiry enables us to revise our values, if need be, and to develop, where appropriate, new ones. We already possess a body of prescriptive judgments that have been tested in practice in the applied sciences of medicine, psychiatry, engineering, educational counseling, and other fields. Similarly, I submit that there is a body of prescriptive ethical judgments that has been tested in practice and that constitutes normative knowledge; and new normative prescriptions are introduced all the time as the sciences progress.

The question is thus raised, what criteria should we use to make ethical choices? This issue is especially pertinent today for those living in pluralistic societies such as ours, where there is diversity of values and principles.

In formulating ethical judgments, we need to refer to what I have called a "valuational base."[3] Packed into this referent are the pre-existing *de facto* values and principles that we are committed to; but we also need to consider empirical data, means-ends relationships, causal knowledge, and the consequences of various courses of action. It is *inquiry* that is the instrument by which we decide what we ought to do and that we should develop in the young. We need to focus on moral education for children; we wish to structure positive traits of character and also the capacity for making reflective decisions. There are no easy recipes or simple formulae that we can appeal to, telling us what we ought to do in every case. There are, however, what W.D. Ross called *prima facie* general principles of right conduct, the common moral decencies, a list of virtues, precepts, and prescriptions, ethical excellences, obligations, and responsibilities, which are intrinsic to our social roles. But how they work out in practice depends on the context at hand, *and the most reliable guide for mature persons is cognitive inquiry and deliberation.*

Conservative theists have often objected to this approach to morality as dangerous, given to "debauchery" and "immorality." Here, there is a contrast between two different senses of morality: (a) the obedience/authoritarian model, in which humans are expected to follow moral absolutes derived from ancient creeds, and (b) the encouragement of moral growth, implying that there are within the human species potential moral tendencies and cognitive capacities that can help us to frame judgments.

For a naturalistic approach, in the last analysis, ethics is a product of a long evolutionary process. Evolutionary psychology has pointed out that moral rules have enabled human communities to adapt to threats to their survival. This Darwinian interpretation implies a biological basis for reciprocal behavior—epigenetic rules—according to E.O. Wilson (1998).[4] The social groups that possessed these rules transmitted them to their offspring. Such moral behavior provides a selective advantage. There is accordingly an inward propensity for moral behavior, moral sentiments, empathy, and altruism within the species.

This does not deny that there are at the same time impulses for selfish and aggressive tendencies. It is a mistake, however, to read in a doctrine of "original sin" and to say that human beings are by nature sinful and corrupt. I grant that there are individuals who lack moral empathy; they are morally handicapped. Some may even be sociopaths. The salient point is that there are genetic potentialities for good and evil; but how they work out and whether beneficent behavior prevails is dependent on cultural conditions. Both our genes (genetics) and memes (social patterns of enculturation) are factors that determine how and why we behave the way we do. We cannot simply deduce from the evolutionary process what we ought to do. What we do depends in part upon the choices we make. Thus, we still have some capacity for free choice. Though we are conditioned by environmental and biogenetic determinants, we are still capable of cognitive processes of selection, and rationality and intentionality play a causative role. (Note: There is a considerable scientific literature that supports this evolutionary view. See Daniel Dennett, *Freedom Evolves* [New York: Viking, 2003] and *Darwin's Dangerous Idea* [New York: Simon and Schuster, 1995]; Brian Skyrm, *Evolution of the Social Contract* [Cambridge: Cambridge University Press, 1996], Robert Wright, *The Moral Animal* [New York: Pantheon Books, 1994] and *Nonzero* [New York: Vintage Books, 2001], Matt Ridley, *The Origins of Virtue* [New York: Viking, 1996], and Elliott Sober and David Sloan Wilson, *Unto Others* [Cambridge, Massachusetts: Harvard University Press, 1998].)

Ethical precepts need *not* be based upon transcendental grounds or dependent upon religious faith. Undoubtedly, the belief that they are sacred may strengthen moral duties for many persons, but it is not necessary for everyone.

I submit that it is time for scientists to recognize that they have an opportunity to contribute to naturalistic ethics. We stand at an interesting time in human history. We have great power to ameliorate the human condition. Biogenetic engineering, nanotechnology, and space research open new opportunities for humankind to create a better world.

Yet there are those today who wish to abandon human reason and freedom and return to mythological legends of our premodern existence, including their impulses of aggression and self-righteous vengeance. I submit that the Enlightenment is a beacon whose promise has not been fulfilled and that humankind needs to accept the responsibility for its own future.

## Conclusion

A caveat is in order. In the last analysis, some degree of skepticism is a necessary antidote to all forms of moral dogmatism. We are continually surrounded by self-righteous moralists who claim that they have the Absolute Truth, Moral Virtue, or Piety or know the secret path to salvation and wish to impose their convictions on all others. They are puffed up with an inflated sense of their own rectitude as they rail against unbenighted immoral sinners who lack their moral faith. These moral zealots are willing to repress or even sacrifice anyone who stands in their way. They have in the past unleashed conquering armies in the name of God, the Dialectic, Racial Superiority, Posterity, or Imperial Design. Skepticism needs to be applied not only to religious and paranormal fantasies but to other forms of moral and political illusions. These dogmas become especially dangerous

when they are appealed to in order to legislate morality and are used by powerful social institutions, such as a state or church or corporation, to enforce a particular brand of moral virtue. Hell hath no fury like the self-righteous moral fanatic scorned.

The best antidote for this is some skepticism and a willingness to engage in ethical inquiry, not only about *others'* moral zeal, but about *our own*, especially if we are tempted to translate the results of our own ethical inquiries into commandments. The epistemological theory that I propose is based upon methodological principles of skeptical scientific inquiry, and it has important moral implications. For in recognizing our own fallibility, we thereby can learn to *tolerate* other human beings and to appreciate their diversity and the plurality of lifestyles. If we are prepared to engage in cooperative ethical inquiry, then perhaps we are better prepared to allow other individuals and groups some measure of liberty to pursue their own preferred lifestyles. If we are able to live and let live, then this can best be achieved in a free and open democratic society. Where we differ, we should try to negotiate our divergent views and perhaps reach common ground; and if this is impractical, we should at least attempt to compromise for the sake of our common interests. The method of ethical inquiry requires some intelligent and informed examination of our own values as well as the values of others. Here we can attempt to modify attitudes by an appeal to cognitive beliefs and to reconstruct them by an examination of the relevant scientific evidence. Such a give-and-take of constructive criticism is essential for a harmonious society. In learning to appreciate different conceptions of the good life, we are able to expand our own dimensions of moral awareness; and this is more apt to lead to a peaceful world.

By this, I surely do not mean to imply that anything and everything can or should be tolerated or that one thing is as good as the next. We should be prepared to criticize moral nonsense parading as virtue. We should not tolerate the intolerable. We have a right to strongly object, if need be, to those values or practices that we think are based on miscalculation, misconception, or that are patently false or harmful. Nonetheless, we might live in a better world if *inquiry* were to replace faith; *deliberation*, passionate commitment; and *education and persuasion*, force and war. We should be aware of the powers of intelligent behavior, but also of the limitations of the human animal and of the need to mitigate the cold, indifferent intellect with the compassionate and empathic heart. Thus, I conclude that within the ethical life, we are capable of developing a body of melioristic principles and values and a method of coping with problems intelligently. When our ethical judgments are based on rational and scientific inquiry, they are more apt to express the highest reaches of excellence and nobility and of civilized human conduct. We are in sore need of that today.

## Notes

1. G.E. Moore. *Principia Ethica* (Cambridge: Cambridge University Press, 1903).
2. See Exodus 21.
3. Kurtz, Paul (ed.). *The New Skepticism: Inquiry and Reliable Knowledge* (Amherst, New York: Prometheus, 1992), chapter 9.
4. Wilson, E.O. *Consilience* (New York: Alfred Knopf, 1998). □


# A Once-in-a-Lifetime Experience—
## Cruise the Caribbean with Secular Humanists and Skeptics!

**December 11–18, 2004**

Special Guest:
**Richard Dawkins**
biologist, best-selling author, and CSICOP Fellow

Onboard Holland America's ***Zaandam*** out of Pt. Canaveral, Florida, visiting the British Virgin Islands, U.S. Virgin Islands, and the Bahamas.

There'll be guest lecturers and surprises galore. Enjoy a grand vacation in grand company, while you support the Center for Inquiry. For itinerary, pricing, and reservations contact Center for Inquiry–*Florida* at 800-398-7571 or e-mail cruise@cfiflorida.org.

cfi CENTER FOR INQUIRY *Transnational*

# The Columbia University 'Miracle' Study: Flawed and Fraud

*The much-hyped Columbia University prayer study was flawed and suspicious from the start but now has been fatally tainted with fraud. The first-named author doesn't respond to inquiries. The "lead" author said he didn't learn of the study until months after it was completed. And now the mysterious third author, indicted by a federal grand jury, has pleaded guilty to conspiracy to commit fraud. All his previous studies must now be questioned.*

BRUCE FLAMM

On September 11, 2001, the United States of America was rocked by perhaps the most horrific event in its history. In the horrible and uncertain days following the destruction of the World Trade Center (and other attacks) by Islamic zealots many Americans turned to prayer. Millions prayed in their homes and churches as their senators and congressmen prayed on the steps of the Capitol building and their president prayed in the White House. Bumper stickers, signs, and banners flooded the nation proclaiming, "God Bless America" and "Pray for America." Millions of faithful Americans prayed for a miracle or perhaps a sign from God. Three weeks later such a miracle occurred. The timing could not have been better.

On October 2, 2001, the *New York Times* reported that researchers at prestigious Columbia University Medical Center in New York had discovered something quite extraordinary (1). Using virtually foolproof scientific methods the researchers had demonstrated that infertile women who were prayed for by Christian prayer groups became pregnant twice as often as those who did not have people praying for them. The study was published in the *Journal of Reproductive Medicine* (2). Even the researchers were shocked. The study's results could only be described as miraculous. This was welcome and wonderful news for a shaken nation.

**In December 2001, the Department of Health and Human Services, after being alerted by media coverage, launched an investigation into the lack of informed consent in the Columbia study.**

Columbia University issued a news release claiming that the remarkable study had several safeguards in place to eliminate bias and that the study itself was carefully designed to eliminate bias (3). This was no hoax. Media attention immediately focused on the miraculous study, and articles touting its spectacular results quickly appeared in newspapers around the world. Rogerio Lobo, chairman of the Department of Obstetrics and Gynecology at Columbia and the study's lead author, told Reuters Health that, "Essentially, there was a *doubling* of the pregnancy rate in the group that was prayed for" (4). Dr. Timothy Johnson, ABC News medical editor and *Good Morning America* commentator, stated, "A new study on the power of prayer over pregnancy reports surprising results; but many physicians remain skeptical" (5).

The facts I will relate here about the Columbia University "miracle" study confirm that those physicians who doubted the study's astounding results had extremely good reasons to be skeptical. It remains to be seen whether ABC's Dr. Johnson, a medical doctor who also serves as a minister at the evangelical Community Covenant Church in West Peabody, Massachusetts, will report or ignore the following shocking information that has since been revealed about the alleged study and its authors.

## The "Miracle" Study

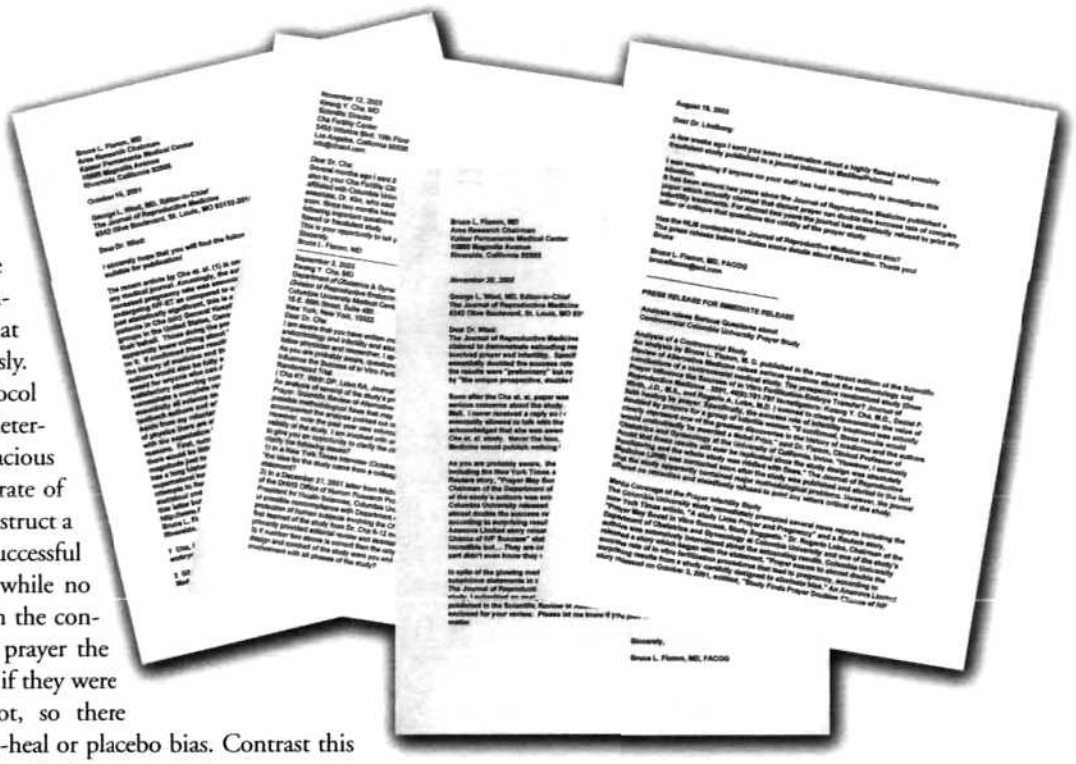
In vitro fertilization (IVF) is the most advanced form of infertility treatment currently available and represents the last hope for women with severe infertility. Therefore, any technique that could increase the efficacy of IVF by even a few percent would be a medical breakthrough. Yet the Columbia University study claimed to have demonstrated, in a carefully designed randomized controlled trial, that distant prayer by anonymous prayer groups increased the success rate of IVF by an astounding 100 percent (2). The Cha/Wirth/Lobo study involved 219 infertility patients in Seoul, South Korea, who required in vitro fertilization. Twenty patients were excluded due to incomplete data, leaving 199 study subjects. After randomization, 100 patients were assigned to the study group to receive IVF plus prayer from Christian prayer groups in the United States, Canada, and Australia. The control group of ninety-nine patients received IVF but did not receive any prayers from these prayer groups. In vitro fertilization was performed in the usual fashion in both groups. The 100 patients in the study group were not informed that the groups were praying for them. Furthermore, none of the patients were even informed that they were being used as study subjects. The prayer groups, which were thousands of miles away from the study subjects, prayed over photographs that had been faxed to them from Korea. Remarkably, the pregnancy rate in the prayed-for group (50 percent) was almost twice as high as the pregnancy rate in the nonprayed-for group (26 percent, p= .0013). The highly significant results seem to indicate that something spectacular had occurred.

However, even a cursory review of the report reveals many potential flaws. For one thing, the study protocol was convoluted and confusing, involving at least three levels of overlapping and intertwining prayer groups. Tiers 1 and 2 each consisted of four blocks of prayer participants. Prayer participants in tier 1, block A, received a single sheet of paper with five IVF patient's pictures (a treatment "unit") and prayed in a directed manner with a specific intent to "increase the pregnancy rate" for these patients about whom they apparently had no information whatsoever. Prayer participants in tier 2, block A, apparently performed two different types of prayer. First, they prayed for their fellow prayer participants in tier 1, block A, with the intent to "increase the efficacy of prayer intervention." In other words, they were apparently praying to increase the effectiveness of their colleagues' prayers, whatever those prayers might be. Next they prayed in a nondirected manner for the study patients with the "intent that God's will or desire be fulfilled in the life of the patient." Similar prayers apparently took place in all of the other blocks. Finally, in addition to all of the above groups, tiers, blocks, and units, a separate group of three individuals prayed in a general nonspecific manner with the intent that "God's will or desire be fulfilled for the prayer participants in tiers 1 and 2." In other words, these final three prayer participants were praying to increase the efficacy of the second tier of prayer participants who were in turn praying to increase the efficacy of the first tier of prayer

*Bruce L. Flamm is a clinical professor of obstetrics and gynecology at the University of California, Irvine. E-mail: Bruce flamm@aol.com. Dr. Flamm is the author of several medical books, book chapters, and research articles. In addition to his work in the medical field he is an expert in the history of calculating devices and has co-authored a book on the subject.*

participants who were in turn praying for increased pregnancy rates in the study patients.

As can be seen from this brief description, the study protocol was so convoluted and confusing that it cannot be taken seriously. Of course, a simple protocol could have been used to determine if prayer was efficacious in increasing the success rate of IVF. One might simply instruct a few believers to pray for successful IVF in the study group while no one prayed for patients in the control group. With distant prayer the patients would not know if they were being prayed for, or not, so there would be no intention-to-heal or placebo bias. Contrast this with the study design described above and draw your own conclusions. This article is too brief to describe all of the study's flaws but readers who want more information are referred to two critiques I have published in *The Scientific Review of Alternative Medicine* (6,7).



Bruce Flamm sent a series of letters to the study's authors and the journal's editors as early as October 2001 raising serious questions about the Cha/Lobo/Wirth prayer study and requesting details about the study's procedures. He never received an answer.

Briefly, here are a few problems I pointed out. Choosing a complex study design rather than a simple one requires explanation, however the authors give no reason for selecting a bewildering study design. Including prayers asking that "God's will or desire be fulfilled" introduced a vague and obfuscating concept that cannot be measured as an endpoint: no one knows what God's will is, hence any outcome could be viewed as a success. The authors made no attempt to discover how much prayer was being conducted outside the study protocol, perhaps to other gods, since only one-third of Koreans are Christians. Occam's razor (the principle that a simple explanation rather than a convoluted one is more often correct) demands that highly unlikely results be viewed with suspicion. Is it more likely that this study is flawed or fraudulent or that the authors have demonstrated the existence of a supernatural phenomena and thus have made perhaps the most important discovery in history?

## The Columbia University Connection

The study's three authors were Kwang Cha, Rogerio Lobo, and Daniel Wirth. Kwang Yul Cha, M.D., was the director of the Cha Columbia Infertility Medical Center at the time of the "miracle" study but apparently severed his relationship with Columbia soon after the study was published. A page on Columbia's Web site, which has since been removed, described Cha as an "internationally renowned clinician and researcher." Cha is a graduate of the Yonsei Medical School in Seoul, South Korea. Professor Rogerio A. Lobo, M.D., recently stepped down as chairman of the department of obstetrics and gynecology at Columbia University. When the study results were announced, Dr. Lobo told the *New York Times* that the idea for the study came from Dr. Cha; however, the Columbia news release claimed that Dr. Lobo led the study. For two years both Dr. Cha and Dr. Lobo have refused to return my phone calls and e-mails asking questions about the study. The study's third author, Daniel Wirth, who will be described below, has no known connection with Columbia University other than his participation in the study.

In December 2001, the Department of Health and Human Services (DHHS), after being alerted by media coverage, launched an investigation into the lack of informed consent in the Columbia study.

Columbia University subsequently acknowledged noncompliance with its Multiple Project Assurance (MPA) and its own policies and procedures (8). Specifically, Dr. Lobo never presented the above research to the Institutional Review Board (IRB) of Columbia-Presbyterian Medical Center (CCPM). In response to the DHHS investigation Columbia University agreed to have its IRB perform an educational in-service for Lobo's department.

In addition, in December 2001, Columbia University Vice President Thomas Q. Morris, a physician, informed the DHHS *that Dr. Lobo first learned of the study from Dr. Cha six to twelve months after the study was completed* and that Lobo primarily provided editorial review and assistance with publication (8). This seems inconsistent with Lobo being listed as one of the study's authors. This also conflicts with the fact that Lobo was identified by both *The New York Times* and ABC News as the report's *lead* author. Lobo was also identified as

the report's lead author in a news release posted for two years on the Columbia University Web site. Interestingly, the press release has recently been removed from the Columbia site. If the report's lead author did not conduct the international prayer study, who did?

**In the entire history of modern science, no claim of any type of supernatural phenomena has ever been replicated under strictly controlled conditions. One would think that all medical journal editors would be keenly aware of this fact and therefore be highly skeptical of paranormal or supernatural claims.**

### The Mysterious Daniel Wirth

The remaining author is a mysterious individual known as Daniel P. Wirth. In October 2002, one year after the Cha/Wirth/Lobo study was published, Mr. Wirth, along with his former research associate Joseph Horvath, also known as Joseph Hessler, was indicted by a federal grand jury (9). Both men were charged with bilking the troubled cable television provider Adelphia Communications Corporation out of $2.1 million by infiltrating the company, then having it pay for unauthorized consulting work. Police investigators discovered that Wirth is also known as John Wayne Truelove. FBI investigators revealed that Wirth first used the name of Truelove, a New York child who died at age five in 1959, to obtain a passport in the mid-1980s. Wirth and his accomplice were charged with thirteen counts of mail fraud, twelve counts of interstate transportation of stolen money, making false statements on loan applications, and five other counts of fraud. A federal grand jury concluded that the relationship between Wirth and Horvath extended back more than twenty years and involved more than $3.4 million in income and property obtained by using false identities. In addition to the Adelphia scheme, Wirth apparently found a way to defraud the federal government by collecting Social Security benefits totaling approximately $103,178 from 1994 to 2003 in the name of Julius Wirth. This man, possibly Daniel Wirth's father, died in 1994 but his benefits continued to be paid after his death via electronic funds transferred to the Republic National Bank.

Incredibly, at the time of the indictment, Horvath, Wirth's partner, was already in jail, charged with arson for burning down his Pennsylvania house to collect insurance money (10). The FBI investigation revealed that Horvath had previously gone to prison in a 1990 embezzlement and false identity case in California. Interestingly, the investigation also revealed that he had also once been arrested for posing as a doctor in California. It appears that the "doctor" who performed biopsies on human research subjects in Wirth's famous healing studies may have actually been Horvath impersonating a doctor. Horvath was a co-author on another of Wirth's studies in which salamander limbs were amputated and found to grow back more quickly when "healers" waved their hands over the wounds.

Both Wirth and Horvath initially pled not guilty to the felony charges, and over the next eighteen months their trial was delayed six times. However, on May 18, 2004, just as the criminal trial of the *United States* v. *Wirth & Horvath* was finally about to begin, both men pled guilty to conspiracy to commit mail fraud and conspiracy to commit bank fraud (11). Each man faced a maximum of five years in federal prison and agreed to forfeit assets of more than $1 million obtained through fraudulent schemes. Horvath, however, was found dead in his jail cell on July 13, 2004, an apparent suicide.

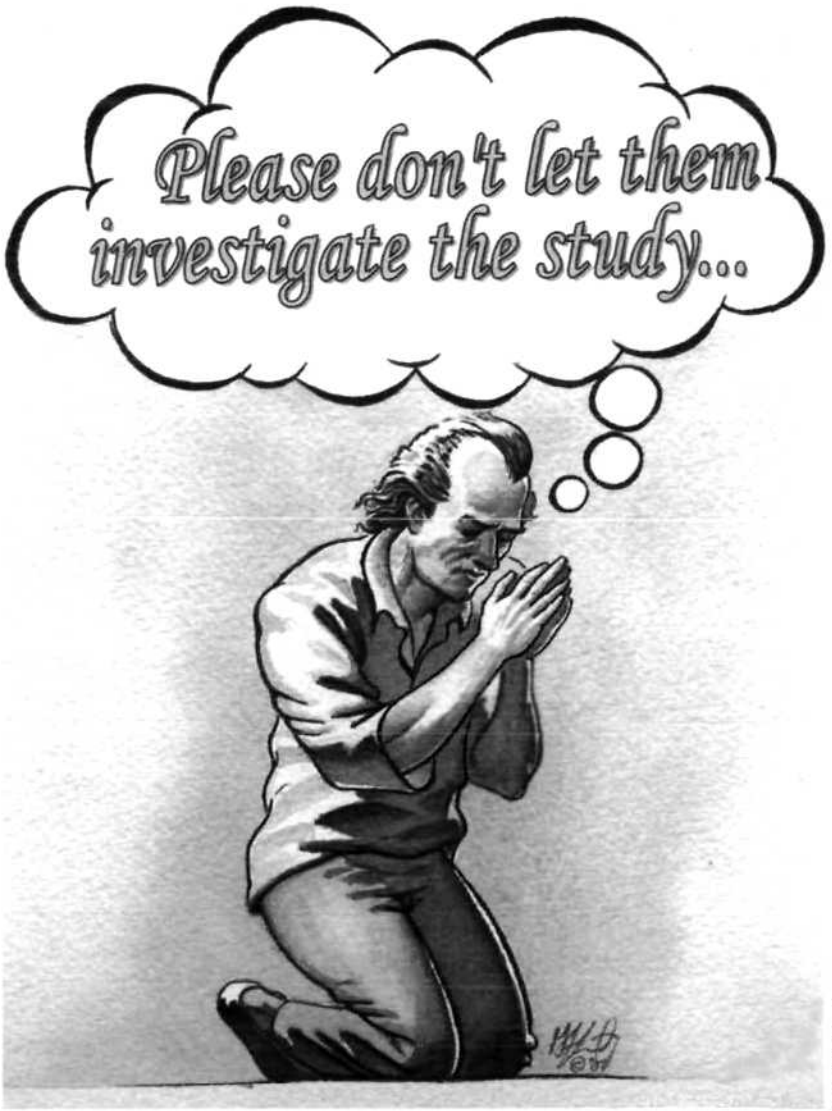
### Daniel Wirth's Prior Research

Wirth, identified as Doctor Daniel Wirth on several of his publications, has no medical degree. He holds a master's degree in parapsychology and a law degree. Wirth has a long history of publishing studies on mysterious supernatural or paranormal phenomena, mainly dealing with alternative and spiritual healing. Most of these studies originated from an entity called "Healing Sciences Research International," an organization that Mr. Wirth supposedly headed. This entity, which sounds like a medical center or impressive research facility, could only be contacted through a post office box in Orinda, California. Between 1992 and 1997 approximately eighteen research papers authored by D.P. Wirth were published, mostly in obscure paranormal journals (12–29).

Wirth has stated that his experiments "represent a seminal research effort within the field of complementary healing," and many faith healing advocates fully agree with his statement. Due to the apparently meticulous design and conduct of Wirth's randomized, double-blind controlled studies he has become the virtual poster boy of alternative healing methods, particularly Noncontact Therapeutic Touch (NCTT). In NCTT the "healer" does not actually touch the patient but supposedly alters undetectable "human energy fields" surrounding the patient. According to Wirth, NCTT apparently achieves its healing effect by an interaction of "energy fields" between the practitioner and the subject. The method requires the healer to 1) "center" his/herself both physically and psychologically, 2) "attune" to the "energy field" of the subject by "scanning" with the hands two to six inches from the body in order to detect imbalances within or blocks within the energy field, and 3)

consciously redirect and "rebalance" the energy in those areas of blockage (24). The existence of these imagined human energy fields has never been proven. Even if such fields did exist, it is not clear how a healer could possibly detect or modify them. In fact, in a recent study twenty-one experienced NCTT practitioners were unable to detect any "human energy fields" under blinded conditions. The study concluded that failure to substantiate TT's most fundamental claim is unrefuted evidence that the claims of NCTT are completely groundless (30).

In addition to his extensive work on NCTT, Wirth has previously conducted several studies involving Christian faith healing. For example, he evaluated and reported on forty-eight patients treated by Greg Schelkun, a spiritual healer trained in the Philippines in the "Espiritista System" of faith healing (17). This system includes "psychic surgery," laying on of hands, and distant prayer healing. It has a Christian foundation in which the practitioner supposedly cultivates divine healing by entering a trance-like state and opening themselves to the healing power of the Holy Spirit. Schelkun asserts that he acts only as a channel for the "universal energies" of God and that any "miraculous cures" that occur are due solely to the Grace of God. Wirth evaluated patients treated by Schelkun for conditions ranging from ovarian cysts to AIDS and even cancer. Wirth found that 90 percent of patients *believed* that their condition was improved by the treatment.



Gerald Fried

In October 2001 narcotics officers raided the Santa Monica, California, office of Dr. William Eidelman, co-author of many of Daniel Wirth's papers. Eidelman is a believer in paranormal healing and an outspoken proponent of the medical use of marijuana. Officers presented a search warrant charging that Eidelman provided undercover narcotic agents with medical marijuana recommendations without valid medical grounds. On May 28, 2002, Eidelman's license to practice medicine was suspended.

### *Journal of Reproductive Medicine*

Perhaps the most fascinating aspect of this entire sordid saga can be summed up in one question: How did a bizarre study claiming extraordinarily unlikely and apparently supernatural results end up in a peer-reviewed medical journal? We may never know. For two years the editors of the *Journal of Reproductive Medicine* (*JRM*) refused to answer my calls or respond to letters about this study. The fact that study co-author Lobo serves on the Editorial Advisory Board of the *JRM* may or may not be relevant. It is known that Columbia University Vice President Thomas Q. Morris informed DHHS investigators that Dr. Lobo first learned of the study from Dr. Cha *six to twelve months after the study was completed* and that Dr. Lobo primarily provided editorial review and *assistance with publication* (8).

On May 30, 2004, the *London Observer* made many of these events public for the first time in an article titled "Exposed: Conman's Role in Prayer-power IVF 'Miracle'"(31). The *Observer* article noted that the study was still posted on the *JRM* Web site and that phone calls from the *Observer* to the *JRM* were not returned. Three days after the scandal had been made public and linked to the journal, perhaps in response to an avalanche of inquiries, *JRM* co-editor-in-chief Dr. Lawrence Devoe finally stated that the *Journal of Reproductive Medicine* would remove the flawed Columbia study from its Web site and publish an editorial clarifying their

author requirements. Both the *Observer* article and a June 7, 2004, article in *The New York Sun* stated that the authors did not respond to their requests for comment.

It must be emphasized that, in the entire history of modern science, no claim of any type of supernatural phenomena has ever been replicated under strictly controlled conditions. The importance of this fact cannot be overstated. One would think that all medical journal editors would be keenly aware of this fact and therefore be highly skeptical of paranormal or supernatural claims. One must therefore wonder if the Columbia researchers and the *JRM* editors were blinded by religious beliefs. Everything else being equal, if the claimed supernatural intervention had been Ms. Cleo manipulating Tarot cards rather than Christians praying, would the reviewers and editors have taken this study seriously? In any case, the damage has been done. The fact that a "miracle cure" study was deemed to be suitable for publication in a scientific journal automatically enhanced the study's credibility. Not surprisingly, the news media quickly disseminated the "miraculous" results.

## Lessons from the 'Miracle' Study Scandal

- The real scandal here lies not in Wirth's actions but in those of Columbia University and the *Journal of Reproductive Medicine*. The scientific method is designed to detect and correct errors and misconduct. In this case the system failed in many places. In fact, if Wirth had not been arrested, the Cha/Wirth/Lobo study might have never been retracted.
- Faith healing advocates like Drs. Dossey and Lark will no doubt try to put a positive spin on this scandal by claiming that it has successfully weeded out a few bad apples from an otherwise pristine bunch. Nothing could be further from the truth.
- Extraordinary claims demand extraordinary evidence. Unless replicated under strictly controlled conditions, studies claiming to have demonstrated "miracle" cures belong in religious and paranormal magazines, not in scientific journals. This is true regardless of whether the claimed "miracle" involves supposed actions of deities, ghosts, psychic powers, or other "mysterious" phenomena.
- It is often claimed that faith healing may not work but at least does no harm. In fact, reliance on faith healing can cause serious harm and even death (35).
- In the entire history of modern science, no claim of any type of supernatural phenomena has ever been replicated under strictly controlled conditions. All scientists and editors of scientific and medical journals should be fully aware of this obvious fact.
- The "faith" in faith healing refers to an irrational belief, unsupported by evidence, that mysterious supernatural powers can eradicate disease. Science deals with evidence, not faith.
- Publication of absurd studies and pseudoscience in medical and scientific journals does serious damage to the public's perception of medical science and science in general.

### Damage Control

Clearly, *JRM*'s belated decision to remove the Columbia study from its Web site will not correct the errors it made in publishing an absurd article and then persistently ignoring warnings about the mistake in doing so. Serious damage has been done. The editors were informed of several of the study's flaws within weeks of its publication and yet allowed the entire study to remain on their Web site for two years. During that time the public was never given any reason to doubt the study's validity or its miraculous claims. As a result of *JRM*'s inaction the Cha/Wirth/Lobo study has been cited in many other "healing" publications and on other Web sites as strong scientific evidence for the validity of faith healing. A Google search performed on June 4, 2004, for the terms, "Wirth, Columbia, prayer" found 686 sites; many of these links led to articles touting the miraculous results of the Cha/Wirth/Lobo study.

Worse yet, the Columbia study is now being cited by faith healers as a shining example of "healing" research of the highest scientific quality. For example, I recently wrote a letter to the editor of *Southern California Physician* critical of its article "Prescription for Prayer" and the appalling claim by noted faith healer Dr. Larry Dossey that some 1,600 studies have revealed "something positive" about intercessory prayer. I commented that if there were, in fact, something positive it certainly wouldn't take 1,600 studies to find it! Dr. Dossey's published response to my letter included the following convincing argument, "Controlled clinical trials and the peer-review process continue to serve us well. The most recent example of this process in action in the area of intercessory prayer is from Columbia Medical School—a positive, controlled clinical trial published in the respected, peer-reviewed *Journal of Reproductive Medicine*" (32). Yes, Dossey had used the hopelessly flawed Columbia "miracle" study to demonstrate the scientific validity of faith healing.

In the February 2004 edition of her nationally distributed newsletter, faith healing advocate Dr. Susan Lark cites the Cha/Wirth/Lobo study as strong evidence for the power of prayer (33). She notes that critics of faith healing have argued that most prayer studies have not been credible due to weak methodologies. However, she points out that "those researchers who believe in prayer are answering this critique quickly—and effectively. The fact is, the medical journals are rapidly filling with studies that are proving the power of prayer." She then presents the proof by describing the Columbia "miracle" study.

In a published critique of phony healing methods, noted physician and chairman of the Dutch Union Against Quackery Dr. Cees Renckens has this to say about the Cha/Wirth/Lobo study: "Very recently a seemingly impeccable paper proving

absurd claims was published in a serious and (hitherto?) respected journal in the field of reproductive medicine" (34). Dr. Renckens also states, "Fraud is difficult to extract from an apparently impeccable paper, but everyone is invited to draw one's owns conclusions about the trustworthiness of the authors. We do not believe anything of the story and are very much opposed to publishing this kind of absurdity in serious journals."

For both Columbia University and the *JRM*, the only honorable solution to this scandal is to fully and publicly disclose their mistakes and apologize for the attempted cover-up. Columbia erroneously submitted a profoundly flawed and absurd article and *JRM* erroneously published it. Simply claiming that they were duped by Wirth and attempting to blame him for their own mistakes would be unethical—and almost certainly false. It would also be a setback for science.

## Conclusion

In summary, one of the authors of the Columbia Cha/Wirth/Lobo study has left the University and refuses to comment, another now claims he did not even know about the study until six months to a year after its completion and also refuses to comment. The remaining author is on his way to federal prison for fraud and conspiracy. *Fraud* is the operative word here. In reality, the Columbia University prayer study was based on a bewildering study design and included many sources of error. But worse than flaws, in light of all of the shocking information presented above, one must consider the sad possibility that the Columbia prayer study may never have been conducted at all.

Finally, Daniel Wirth's history of criminal fraudulent activity casts a dark shadow over many of the supposedly seminal publications in the field of alternative and faith healing. In light of these facts, *all* of his frequently-cited publications must now be viewed with suspicion. While faith healers have performed rituals and cast out demons for millennia, they are now attempting to validate their claims with scientific methods and publish their results in peer-reviewed medical journals. It is one thing to tell an audience at a tent revival that prayers yield miracle cures but quite another thing to make the same claim in a scientific journal. By doing so, faith healers cross the line into the domain of science, a domain where superstitious and supernatural claims are not taken seriously.

## References


1. Nagourney, E. Study links prayer and pregnancy. *New York Times.* 2001; October.

2. Cha KY, Wirth, DP, Lobo, RA. Does prayer influence the success of in vitro fertilization-embryo transfer? *J Reprod Med* 2001;46:781–787.

3. Eisner, R. Prayer may influence in vitro fertilization success. Columbia News. This document remained on the Public Affairs News page of Columbia University Internet site for more than two years after the publication of the Cha/Wirth/Lobo study (www.columbia.edu/cu/news).

4. Schorr, M. Prayer may boost in-vitro success, study suggests. Reuters News Service: 2001; October.

5. Johnson, T. Praying for pregnancy: Study says prayer helps women get pregnant. ABC television *Good Morning America* 2001; October 4.

6. Flamm, BL. Faith healing by prayer: Review of Cha, KY, Wirth, DP, Lobo, RA. Does prayer influence the success of in vitro fertilization-embryo transfer? *Sci Review Alt Med* 2002; 6(1):47–50.

7. Flamm, BL. Faith healing confronts modern medicine. *Sci Review Alt Med* 2004; 8(1):9–14.

8. Carmone, MA. Letter to Thomas Q. Morris, MD, Vice President for Health Sciences Division, regarding possible noncompliance with DHHS regulations for protection of human subjects in the conduct of the Cha et. al. Study. Available at: http://ohrp.osophs.dhhs.gov/detrm_letrs/dec01f.pdf.

9. Pair charged with scheming Adelphia out of $2.1 million. Associated Press. October 16, 2002.

10. Dale, M. Arson added to charges pending against ex-Adelphia manager. Associated Press. *Contra Costa Times.* February 5, 2003.

11. McDermott, J. Mystery man admits to conspiracy. *The Morning Call Newspaper.* May 18, 2004. This article can be viewed in the news archives at www.mcall.com.

12. Wirth DP, Cram JR, Chang RJ. Multisite surface electromyography and complementary healing intervention: A comparative analysis. *J Altern Complement Med* 1997 Winter; 3(4):355–64.

13. Wirth DP, Cram JR. Multisite electromyographic analysis of Therapeutic Touch and qigong therapy. *J Altern Complement Med* 1997 Summer; 3(2):109–18.

14. Wirth DP, Richardson JT, Eidelman WS. Wound healing and complementary therapies: A review. *J Altern Complement Med* 1996 Winter; 2(4):493–502.

15. Wirth DP, Chang RJ, Eidelman WS, Paxton JB. Hematological indicators of complementary healing intervention. *Complementary Therapies in Medicine* 1996 January: 14–20.

16. Wirth DP, Richardson JT, Martinez RD, Eidelman WS, Lopez ME. Non-contact Therapeutic Touch intervention and full-thickness cutaneous wounds: A replication *Complementary Therapies in Medicine* 1996 October: 237–240.

17. Wirth, DP. The significance of belief and expectancy within the spiritual healing encounter. *Soc Sci Med* 1995;41(2):249–260.

18. Wirth, DP. Complementary healing intervention and dermal wound reepithelialization: An overview. *Int J Psychosomatics* 1995;42:48–53.

19. Wirth DP, Cram JR. The psychophysiology of nontraditional prayer. *Int J Psychosom* 1994;41(1–4):68–75.

20. Wirth DP, Barrett MJ. Complementary healing therapies. *Int J Psychosom* 1994;41(1–4):61–7.

21. Wirth DP, Mitchell BJ. Complementary healing therapy for patients with Type 1 diabetes mellitus. *Journal of Scientific Exploration* 1994;8(3): 367–377.

22. Wirth DP, Barrett MJ, Eidelman WS. Non-contact therapeutic touch and wound reepithelialization: an extension of previous research. *Complementary Therapies in Medicine* 1994 (2) October: 187–192.

23. Wirth DP, Brenlan DR, Levine RJ, Rodriguez CM. The effect of complementary healing therapy on postoperative pain after surgical removal of impacted third molar teeth. *Complementary Therapies in Medicine* 1993 July 133–138.

24. Wirth DP, Cram JR. Multi-site electromyographic analysis of non-contact Therapeutic Touch. *Int J Psychosom* 1993;40(1–4):47–55.

25. Wirth DP, Richardson JT, Martinez R, Eidelman WS, O'Malley AC. Full thickness dermal wounds treated with non-contact Therapeutic Touch; a replication and extension. *Complementary Therapies in Medicine* 1993 July: 127–132.

26. Wirth, DP. Implementing spiritual healing in modern medical practice: Advances. *J Mind-Body Health* 1993;(9):69–81.

27. Wirth DP, Johnson CA, Horvath JS, MacGregor JD. The effect of alternative healing therapy on the regeneration rate of salamander forelimbs. *Journal of Scientific Exploration* 1992; (6):375–391.

28. Wirth, DP. The effect of non-contact Therapeutic Touch on the healing rate of full thickness dermal wounds. *Nurse Healers Professional Associates* 1992;13(3):4–8

29. Wirth, DP. The effect of non-contact Therapeutic Touch on the healing rate of full thickness dermal wounds. *Subtle Energies* 1990; 1:1–20.

30. Rosa L, Rosa E, Sarner L, Barrett S. A close look at Therapeutic Touch. *JAMA* 1998 Apr 1:279(13):1005–10.

31. Harris, D. Exposed: Conman's role in prayer-power IVF 'miracle'. *The Observer* May 30, 2004.

32. Dossey, L. Response to letter to the editor. *Southern California Physician* December 2001:46.

33. Lark, S. The power of prayer. The Lark Letter: A women's guide to optimal health and balance. February 2004:1–3.

34. Renckens, CNM. Alternative treatments in reproductive medicine: much ado about nothing. *Human Reproduction* 2002;17(3):528–533.

35. Flamm, BL. The inherent dangers of faith healing. *Sci Review Alt Med.* In Press. □

# 'Teach the Controversy'

## *An Intelligently Designed Ruse*

*In their quest to have Intelligent Design theory included in educational curricula, proponents have rallied behind a specious strategy, exhorting school boards to "teach the scientific controversy" surrounding the issue of evolution.*

ROBERT CAMP

> When two groups of experts disagree about a controversial subject that intersects the public school curriculum, students should learn about both perspectives (Meyer 2001).

This is the first line of Stephen Meyer's "Teach the Controversy," an article in the *Cincinnati Enquirer* on March 20, 2001. On its face, this appears to be a reasonable, even desirable, approach to pedagogical practice. Meyer, director of the Discovery Institute's Center for Science and Culture, spoke at a meeting of the Ohio State Board of Education and wrote this piece in support of the inclusion of "Intelligent Design Theory" in the state's biology curriculum. Meyer expands upon his opening sentence with the following: "In such cases teachers should not teach

as true only one competing view, just the Republican or Democratic view of the New Deal in a history class, for example. Instead, teachers should describe competing views to students and explain the arguments for and against these views as made by their chief proponents. Educators call this 'teaching the controversy.'"

Meyer is but one of many individuals employing this particular rhetoric in support of teaching Intelligent Design (ID) in public schools. Another, Berkeley law professor Phillip Johnson had this to say regarding a school board vote in Ohio: "This vote is a significant breakthrough in a major state towards official recognition that there is a scientific as well as a public controversy over the theory of evolution, and that the contested issues ought to be taught rather than suppressed" (Johnson 2003). And there is this from one of the leading lights of ID, William Dembski: "The clarion call of the Intelligent Design movement is to 'teach the controversy.' There is a very real controversy centering on how properly to account for biological complexity (cf. the ongoing events in Kansas), and it is a scientific controversy" (Dembski 2001).

The ID movement even goes so far as to enlist the help of a man whose name is lent to the body of work they challenge. To buttress their argument, several have quoted this line from Charles Darwin's *Origin of Species*: "A fair result can be obtained only by fully stating and balancing the facts and arguments on both sides of each question" (Darwin 1859).

It is obvious that there is a concerted effort being made—Dembski says as much above—within the Intelligent Design movement to work the "controversy" angle, and again, at first glance, these arguments appear to be an appeal to rationality and compromise. To be sure, it's possible that Meyer, Dembski, and Johnson believe they are being rational when they apply these arguments to the broad spectrum of biological origins. However, the assertion that there is a "scientific" controversy to be taught is at best misguided and at worst disingenuous.

## Exploiting Fair-mindedness

Individuals who push the "it's only fair to teach both sides" tactic count on those estimable intellectual qualities one finds in critical thinkers to tip the balance of opinion in their favor. These qualities, including fair-mindedness, intellectual curiosity, and openness not only allow for but indeed urge that all sides of an issue be aired. But I submit that ID proponents hope that those who employ these attributes will not scrutinize the "scientific controversy" assertion too deeply. A closer examination of these arguments in general, and Meyer's fortuitous analogy in particular, shows that the metaphor breaks down, and the so-called scientific controversy is little more than a political ploy. What Dembski et al. are offering, looked at from the perspective of science, is not controversial. And examined in the broader political context, this dispute, while perhaps rising to the level of controversy, is demonstrably not scientific.

A look at Meyer's metaphor is useful. Likely all will agree that competing political views of the New Deal not only deserve to be taught but in fact must be taught to properly cover the scope of the subject. And it is not surprising to find that there are differing, perhaps even diametrically opposed, perspectives regarding a particular aspect of a sub-discipline (modern American history) of the overarching rubric of history itself. It is through exploration of these opposing perspectives that teaching takes place. Meyer's example could perhaps reasonably be referred to as a historical controversy by virtue of the fact that there is a source of dispute marked by expression of opposing views among historians discussing history. The point here is that there is a broad gulf of difference between a *controversy* and a *historical controversy*. Addition of the modifier implies a dispute as to detail or process between those who share a common epistemological and empirical foundation. This debate can proceed using common references, terminology, and accepted evidence. Within this context, viewed at this scale, what may seem an overblown dispute over arcane minutiae to those outside the discipline could properly be deemed a controversy.

**There is a concerted effort being made to work the "controversy" angle, and at first glance these arguments appear to be an appeal to rationality and compromise.**

By contrast, however, consider an outsider, perhaps a mathematician, who insists that he has discovered that the foundational precepts of historical sciences themselves are flawed. If he makes his case to historians, and they, by an overwhelming percentage, affirm that his argument has no applicability within their discipline, how could we legitimately call this a historical controversy? Our mathematician may wish to engage historians on the issue and in doing so might drive the dispute to a controversial pitch. But while his argument may indeed be about history, it is not the kind of "historical controversy" that one would suggest requires inclusion in the history curriculum. In short, in the context of history (the discipline), the fact that historians regard our mathematician's case as immaterial certainly leaves it short of controversial. And in the larger context, any resulting controversy could not reasonably be qualified as historical.

## Disdain for Science

The obvious implication here is that the assertion of "scientific controversy" regarding ID and biological origins is little more than an attempt to define the parameters of the issue for

*Robert Camp lives in San Juan Capistrano, California. He has a B.S. in biology and keen interests in issues of biological origins and pseudoscience. E-mail: robertlcamp@cox.net.*

political gain. The interests of Intelligent Design advocates are served by the perception that a scientific controversy exists. But this is not a genuine scientific dispute between evolutionary biologists regarding details of legitimate controversies such as the pace of speciation or phylogenetic classification. It is a political movement, begun and led by those outside the discipline, which advances the proposal that biology—and science itself—are flawed at the core. Science is drawn to unanswered questions. Science attempts to shine light into dark, unexplained places and advance our understanding of the unknown, if only incrementally. But the operative result of ID theory is to take the opposite course, to draw from an unknown the conclusion that it is unknowable and is therefore ontologically supernatural (intelligently designed). The chilling effect this methodology would have upon proper scientific inquiry is obvious.

**The interests of Intelligent Design advocates are served by the idea that a scientific controversy exists. But this is not a genuine scientific dispute between evolutionary biologists regarding details of legitimate controversies such as the pace of speciation or phylogenetic classification.**

Clearly this perspective does not spring from an understanding of, or respect for, science. Though current political strategy cues ID proponents to aver that their concepts make no statements regarding the nature or identity of the designer, the movement is unquestionably driven by theological imperatives. Most scientists recognize this and regard ID accordingly. (In one poll of Ohio scientists, 91 percent of respondents answered "Yes" when asked the question: "Do you think the concept of 'Intelligent Design' is primarily a religious view?"[NCSE 2002].) In spite of this, ID proponents present their theory as a combatant in a scientific controversy. This public relations maneuver allows ID to look respectable, to appear to be a concept of substance and science. But from the point of view of science and scientists, specifically biologists, it is neither. Brown University cell biologist Ken Miller characterizes ID as: "essentially a movement against reason. It's an argument that embraces ignorance" (Miller 2001).

Miller's view is shared by the vast majority of scientists, some of whom have mobilized in an attempt to protect science education. In support of removing the Santorum amendment (which expressly advanced this notion of "teaching the controversy") from the House version of the No Child Left Behind Act, a "Joint Letter from Scientific and Educational Leaders on Evolution in H.R.1" was signed by representatives of eighty scientific and educational organizations. The letter was unflinching in its support for evolutionary science: "Evolutionary theory ranks with Einstein's theory of relativity as one of modern science's most robust, generally accepted, thoroughly tested, and broadly applicable concepts" (Joint Letter 2001). The joint letter also recognized the underlying motivations in the ID movement: "As written, the apparently innocuous statements in this resolution [the Santorum amendment] mask an anti-evolution agenda that repeatedly has been rejected by the courts." Furthermore, "If the point of the resolution is to encourage teaching about *political* controversy surrounding scientific topics, then evolution is just one of a legion of issues that are the subject of political debate. It should not be singled out. Confusing political with scientific controversy on the topic of biological evolution will weaken science education."

A resolution dealing directly with ID released by the American Association for the Advancement of Science (2002) declared: "Recognizing that the 'intelligent design theory' represents a challenge to the quality of science education," (it is important to emphasize here that this is not recognition of a challenge to *science* but to *science education*) "the Board of Directors of the AAAS unanimously adopts the following resolution:

> *Whereas*, ID proponents claim that contemporary evolutionary theory is incapable of explaining the origin of the diversity of living organisms;
>
> *Whereas*, to date, the ID movement has failed to offer credible scientific evidence to support their claim that ID undermines the current scientifically accepted theory of evolution;
>
> *Whereas*, the ID movement has not proposed a scientific means of testing its claims;
>
> *Therefore Be It Resolved*, that the lack of scientific warrant for so-called "intelligent design theory" makes it improper to include as a part of science education;
>
> *Therefore Be Further It Resolved*, that AAAS urges citizens across the nation to oppose the establishment of policies that would permit the teaching of "intelligent design theory" as a part of the science curricula of the public schools. . . .

Plainly, it is not credible to suggest there is a scientific controversy regarding Intelligent Design. To be sure, there is a political controversy, and some evidence suggests that there is a public controversy as well. Some polls indicate significant public support for the inclusion of ID in public science-education curricula. If true, this should prompt us to examine some of the underlying causes, even as we recognize that public opinion does not bear upon scientific consensus. A poll conducted by the *Cleveland Plain Dealer* (2002) may offer some insight. One of the poll questions confirms what most opposed to ID would expect, that the level of science education is at least partly responsible for the public's reaction. The questions asks: "Would you say that you are very familiar, somewhat familiar, or not that familiar with the concept of evolution?" to which those polled responded, "Very Familiar": 42 percent; "Somewhat Familiar": 43 percent; "Not Familiar": 15 percent.

While we may reasonably ask what exactly qualifies as "very familiar," even with skepticism aside, we can propose that at least 58 percent of respondents to this poll likely did not know enough about evolution to be able to critically judge questions

of intelligent design and biological origins. This affords plenty of polemical opportunities wherein the well-known Wedge strategy (a process by which ID proponents infiltrate science by political means) might seek incursion (Forrest and Gross 2004; Center for the Renewal of Science and Culture 2001), and the strategy on the part of ID proponents in this effort can often be subtle (perhaps surreptitious?). They seek to appeal to the honest, egalitarian natures of critical thinkers. In addition, they attempt to demonstrate that esteemed individuals and scientists support their point of view (as with the quote of Darwin mentioned earlier).

Most important, however, they try to soft-pedal their goals, appearing to desire only to have evidence both for and against biological evolution covered in science classes. But this is already the case. Perhaps in high schools, where there is barely enough time to communicate the empirical and theoretical foundations of biology, there is little opportunity for fine-scale analysis. But certainly in higher educational environments, this is, as with the example of historical contention earlier, integral to the advancement of biology itself. To propose that one desires only that "evidence for and against" evolution be taught while simultaneously trying to appear scientific and unfairly scorned is, from the perspective of science, utterly banal.

In comments regarding the *Plain Dealer* poll previously cited, ID proponents from a group called Science Excellence for All Ohioans exulted: "The results are quite gratifying to those of us who favor an objective 'teach the controversy' approach to biological origins. Science Excellence for All Ohioans believes that schools should (a) teach the evidence for and against biological evolution; (b) permit, but not require, teachers to discuss alternative theories such as Intelligent Design; and (c) adopt a definition of science that allows for consideration of all logical explanations for phenomena in nature." Of course, no reasonable scientist, or layman for that matter, would argue against either the first or last option. Both are wholly noncontroversial and are matters of scientific procedure. But here again, a patina of conciliation and reason is employed to obscure an attempt "(b)" to smuggle religion in the form of Intelligent Design into the science curriculum.

In the light of limited science education and political tactics it is not hard to understand that many parents might initially support teaching ID in schools. One is left to wonder, though, what the public's reaction would be if, with the door opened, a bewildering variety of theologically motivated "scientific" origins theories demand equal time. (For that matter, where would this leave those who complain that we must teach *both* sides?) Reflecting on this scenario, it's not hard to imagine biologists sarcastically observing at some point, "All these problems with evolutionary biology and no one bothered to tell us about it."

It is a sad, foregone conclusion that we have not heard the last requests to "teach the controversy." As long as people like Phillip Johnson and William Dembski feel they can profitably bring the battle to school boards—as they have done in Kansas, Minnesota, California, Ohio, Texas, and recently in Missouri—they will continue to promulgate their political campaign. Despite suffering defeats (notably in Kansas, California, New Mexico, and Texas) in their attempted end runs around the scientific process, they will almost certainly continue this strategy.

In his testimony before the Texas State Board of Education, Dembski said: "Don't believe for one moment that all meaningful scientific debate about biological evolution has ceased or that it is only about loose ends and trivial details. If that were the case, none of us would be here today" (Dembski 2003).

Most biologists will happily confirm that "all meaningful scientific debate about biological evolution" has certainly not ceased. It is the lifeblood of science, as well as many other disciplines, that ideas are squeezed and prodded and debated vigorously. This is how scientific consensus is eventually reached. But Dembski's suggestion that he would not have been speaking at a school board meeting had all meaningful debate ceased, while probably literally true, is, as a metaphor for his motivation, misleading. To extend the metaphor, certainly the assorted scientists would not have been there, likely the board would not have needed to bother, and most of the spectators would have been elsewhere. But Dembski would have been there, regardless of the state of biological consensus, precisely because his difficulty with evolution is not scientific, and his political controversy can only be sustained by feeding the rhetorical flame. The image of Dembski arguing from an empty dais to a nearly empty room is indeed an apt metaphor. For evolution enjoys a remarkably broad scientific consensus, and scientists, as well as the media, take notice of ID only when it tweaks a sensitive spot such as science education. It is for this reason that ID proponents extol the virtues of teaching a "scientific controversy" that clearly has little to do with responsible public education, and even less to do with science.

## References


American Association for the Advancement of Science. 2002. AAAS Board Resolution. Intelligent Design Theory. Available online at www.aaas.org/news/releases/2002/1106id2.shtml.

Center for the Renewal of Science and Culture. 2001. The Wedge Strategy. Available online at www.antievolution.org/features/wedge.html.

*Cleveland Plain Dealer.* 2002. Ohio Issue Poll. June. Available online at www.nmid-net.org/CLEVELAND%20PLAINS%20DEALER%20POLL.doc.

Darwin, Charles R. 1859. *The Origin of Species.* New York. Penguin Group.

Dembski, William A. 2001. Teaching Intelligent Design—What happened when? A response to Eugenie Scott. Available online at www.theism.net/article/16.

Dembski, William A. 2003. Testimony of William Dembski before Texas State Board of Education. Design Inference Web site. Available online at www.designinference.com/documents/2003.09.TSBoE_Testimony.pdf.

Forrest, Barbara, and Paul R. Gross. 2004. *Creationism's Trojan Horse: The Wedge of Intelligent Design.* Oxford: Oxford University Press.

Johnson, Phillip E. 2003. A step forward in Ohio. *Touchstone* 16 (1). Available online at www.touchstonemag.com/docs/issues/16.1docs/16-1pg11.html.

Joint Letter from Scientific and Educational Leaders on Evolution in H.R.1. 2001. Available online at www.agiweb.org/gap/legis107/evolution letter.html.

Meyer, Stephen J. 2001. Teach the controversy. *Cincinnati Enquirer,* March 30, 2002.

Miller, Kenneth. 2001. Evolution and Intelligent Design. Religion and Ethics Newsweekly. Available online at www.pbs.org/wnet/religionandethics/week504/feature.html.

Ohio Scientists' Intelligent Design Poll. 2002. National Center for Science Education. Available online at //www.ncseweb.org/resources/articles/733_ohio_scientists39_intellige_10_15_2002.asp. □

# The Campeche, Mexico 'Infrared UFO' Video

*Mysterious objects filmed by the Mexican military in March 2004 created a flurry of excitement and strange claims. A new analysis from a respected expert suggests that the images have a prosaic explanation—despite premature dismissals by skeptics and believers alike.*

ROBERT SHEAFFER

A now-classic UFO video was taken on the afternoon of March 5, 2004, in southern Mexico, over the states of Chiapas and Campeche. A Merlin C26/A aircraft of SEDNA, the Mexican Secretariat of Defense, was on routine patrol looking for drug smuggling or other illegal activity. It was using the Star SAFIRE II infrared sensing device manufactured by FLIR Systems of Portland, Oregon. From an elevation of 3,500 meters (approximately 11,500 feet), the infrared sensor system recorded a sequence of unidentified objects, at one point numbering as many as eleven.

These UFOs (like most UFOs photographed) appeared only as bright points of light, showing no detail or structure. But they were different from the run-of-the mill UFO sightings

because the objects could not be seen visually but did appear only in the infrared images. Infrared systems such as the Star SAFIRE II detect electro-magnetic radiation in the 3 to 5 micron bandpass, with a resolution of 640 by 480 pixels. Images are formed by the differences in the scene's apparent infrared radiant intensity caused by temperature differences and emissivity differences, and to a lesser extent reflected energy. Thus, objects hotter than their background appear to be self-luminous. The images can be recorded digitally or on conventional video recording equipment (with lower resolution) as was the case here. Infrared systems are useful for daytime operations, especially in humid climates where visibility tends to be poor, because infrared radiation penetrates the atmosphere better than visible light. These objects were recorded as brilliant objects in the infrared, suggesting that they were emitting enormous amounts of heat. However, due to the nature of the video recording and lack of knowledge of the sensitivity parameters, actual temperatures are impossible to ascertain from the available data.

Figure 1. Infrared view showing two reported "UFOs": Oil well platforms with intensely hot flares, seen with medium zoom setting.

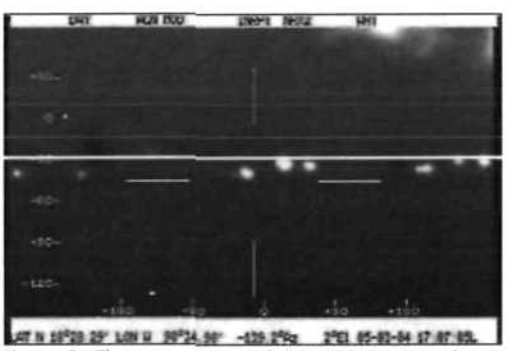


Figure 2. The same reported "IR UFOs" at maximum zoom: individual flares from each oil well are now visible.

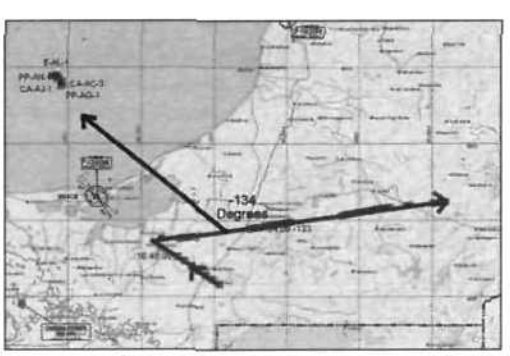



Figure 3. The flight path of the Merlin C-26/A aircraft. The look-back angle of −134 degrees points toward the offshore oil platforms in the Bay of Campeche. The supposed "radar UFOs" were in the opposite direction, ahead of the aircraft. Some of them were probably trucks on the Yucatan Highway.

To get a better understanding of the operation of the infrared recording system, and the situation in which it was being employed, I contacted *John Lester Miller, author of* more than forty scientific papers and four textbooks on infrared and electro-optical technology. He is also an active member of Oregonians for Rationality.[1] He explained:

> The UFOlogists' concerns about not being able to acquire the objects visually is meaningless. These systems are specifically designed to detect objects that cannot be seen by the human eye. Frankly, it would be a waste of taxpayers' money to equip a plane with a system that could not detect objects invisible to the eye. If the eye could see everything that the IR sensor can, then it would be far cheaper and more effective to put a few privates in the aircraft with binoculars. But this isn't the case. By exploiting infrared electromagnetic radiation caused by thermal and emissivity differences in a scene, a different landscape is revealed. For example, infrared imagers can easily detect humans and animals at a distance of several miles at night where the eye or CCD sees nothing but darkness. Moreover, being longer in wavelength, typically infrared radiation transmits better though the atmosphere than visible and is exactly why it is now being deployed on commercial aircraft for enhanced vision for pilots.

These images were viewed though one of the worst atmospheric conditions possible. Hot, humid, and partly cloudy at a land and sea interface, during the thermal instability of sunset or sunrise. This represents one of the most difficult atmospheric conditions for accurate imaging. These conditions seriously impair the quality of the images in the visible and even reduce the quality in the infrared. In these stressing atmospherics, it is no surprise that there was nothing visible to the eye and the images are blurred and altered in the infrared. The smaller images below the main images could be reflections from water or ground (common in the infrared) or even mirages. All of these phenomena are typically observed in such conditions. The bending of the light in the atmosphere going though multiple dynamic layers of varying indexes of refractions also call into question the angular indications.

Any representation of a three-dimensional scene on a two-dimensional surface (be it a painting, photograph, television, or infrared scene on a display) lacks absolute range information. It is impossible to infer the range from the image of an object based on brightness or size, unless the brightness and size are well known, the atmospheric conditions are well known, and the sensor settings are known. There are simply too many unknowns to solve the equations. Painters and photographers have long exploited the human predisposition to read range into a two-dimensional scene for both optical illusions and stunning artistic effects. Infrared sensors frequently employ a laser rangefinder option for this very reason, which was not present on the sensor that acquired these images. The only way to accurately determine range is by radar.

At some points two unidentified objects were reported to have turned up on radar. However the position and number of the radar objects did not even come close to matching that of the infrared ones, so whatever the radar targets were, they were not the same as those recorded on video. This is generally the case when visual sightings of UFOs (or in this instance, infrared sightings) are "confirmed" by radar. Unfortunately, no radar data from the aircraft was recorded, so we must rely on the crews' recollection of what it showed. The military radar operator in the city of

*Robert Sheaffer is a CSICOP Fellow and long-time skeptical UFO investigator. He is the author of* UFO Sightings *(Prometheus Books, 1998). His Web page for UFOs and other skeptical subjects is at www.debunker.com.*

Carmen was contacted, and it was not showing any unknown objects.[2] UFO researcher Brad Sparks, plotting the direction and distance of the aircraft's radar returns on a map, found that some of them appear to match the position of the Yucatan Highway 186. He suggests that the measured velocity of the radar objects (fifty-two knots, or sixty miles per hour) is quite consistent with the velocity of trucks, and so concludes that some, although not all, of the moving objects spotted on radar are due to trucks on the highway.[3] There are many kinds of objects, both flying and on the ground, that can turn up as targets on aircraft radars and infrared sensors.

**Skeptical analysts had identified the probable source of the objects: burning oil well flares from offshore oil platforms in the Bay of Campeche.**

The tapes were released to Jaime Maussan, a well-known Mexican broadcaster and UFOlogist who has made a career out of the sensationalist promotion of supposedly "unexplained mysteries." Maussan's pronouncements range from the sensational to the absurd. For example, in 2000 he told a UFO conference about "glowing extraterrestrials" being widely seen in Mexico, and claimed to have sighted one of them himself. He also showed a photo of a supposed alien "life form" reportedly encountered by Apollo 11 astronauts on the Moon, labeled "El Hombre de la Luna."[4] If one wanted an objective evaluation of the objects in the video, Maussan would be last person to turn to. Indeed, a May 17, 2004, editorial in the influential Mexican newspaper *La Cronica de Hoy* by Raul Trejo Delarbre suggested exactly that.

On May 11, Maussan held a press conference promoting the videos as a sensational mystery. Maussan's story ran widely in the news media worldwide, including the Associated Press, CNN, Reuters, MSNBC, *USA Today*, and Fox News. He soon had the videos on his TV show, as well as on a Web site.[5] The Web site is filled with a mixture of information and misinformation concerning the objects. It claims that the "halos" seen surrounding the objects is evidence of a powerful magnetic field. It goes on to wax knowingly about the objects' "frequency" and "vortex," as well as their supposed violation of "entropy," all of which is complete pseudoscientific balderdash.

Unfortunately, many would-be skeptics made hasty pronouncements about the objects, thereby giving all UFO skeptics a bad name. The Urania Astronomical Society of the state of Morelos told the newspaper *El Universal* on May 13 that the UFOs filmed might be a group of weather balloons. Dr. Julio Herrera of Mexico's National Autonomous University told the Associated Press that the UFOs were electrical flashes in the atmosphere, a theory that makes very little sense. A few days later, he was attributing them to "ball lightning." Rafael Navarro of that same university told a press conference on May 14 that the UFOs were luminous sparks of plasma energy. Mexican astronomer Jose de la Herrin stated that the stationary objects could be meteor fragments. UFOlogists were soon gleefully mocking these absurd explanations, making it look as if skeptics were ignorant fools who couldn't recognize alien spacecraft when they saw one. There is nothing wrong with saying, "I don't yet have enough information to know what the objects are, but I am confident that when more facts come in, we'll find a prosaic explanation."

By May 20 some skeptical analysts had identified the probable source of the objects: burning oil well flares from offshore oil platforms in the Bay of Campeche. This region is the center of Mexico's petroleum industry, containing more than 200 wells on nine platforms, many of them close to the city of Carmen. (One of the voices on the video can be heard saying that the objects are "at Carmen.") At that point it was thought that there had been some temporary burn-off of excess natural gas within the well—but it turns out that the oil well flares burn more or less continuously in this region. The area also has large steam generating plants that pump incredible amounts of hot steam deep into the ground to increase the pressure and ease the flow of oil.

One anonymous "concerned outdoorsman" who works on offshore oil platforms wrote on the environmentalist Web site www.myoutdoorjournal.com:

> Each day while I work, I see flares burning at such a rate that it is almost unbelievable to the human eye. I'm told that all gas sources are being burnt off through the flares just to keep the crude oil flowing from each well. Each production platform consists of at least twelve penetrations drilled into the sea floor reaching to different depths. Each platform has a flare some have two, in which are roaring twenty-four hours a day, three hundred and sixty-five days a year. . . . At night when looking across the bay of Campeche, it looks like a spotted forest fire out of control in the distant far yonder, in any direction you choose to look. The black smoke rolls and it never stops!

On May 26, Capt. Alejandro Franz of the private Mexican UFO research organization Alcione, who is far more skeptical than Maussan and his colleagues, independently came to the same conclusion. A former pilot who has flown extensively in that region, Franz wrote on the widely-read UFO Updates online forum: "Cantarell Field or Cantarell Complex is the largest oil field in Mexico, located 80 kilometers offshore in the Bay of Campeche. . . . The objects (lights) are in a fixed position with a dark background (the sea) while the camera on board is following the lights that are showing in the screen as a very brilliant source of light . . . the lights are coming from steady oil platform flames (passive fire) located in the Gulf of Mexico between 50 and 90 Km from Ciudad del Carmen City where the objects, at least one light as the FLIR or RADAR operator tells is exactly over Ciudad del Carmen"[6]

On the Alcione Web site, Franz provides a great deal of

information and many photos concerning the Cantarel offshore oil wells and their continuous flares. No reasonable person could see his photos comparing the flaming offshore platforms with the infrared UFOs from the video and reject the probability that the two are the same.

Franz is mistaken in suggesting that the aircraft was headed north at the time that the videos were taken. The aircraft was headed eastward, at an azimuth of approximately 80 degrees. This is confirmed by an event occurring near the end of the half-hour video, twenty-six minutes in. The crew members are briefly surprised by the image on the Star SAFIRE II of a large, round object. They zoom in, and realize that it's the moon coming up. "The moon, it's the moon," they laugh. The moon rose at approximately 17:20 from their location, at a geo-azimuth of 75 degrees. Because the azimuth of the Star SAFIRE II relative to its aircraft mount is reading approximately –5 degrees (just left of straight ahead), that confirms that the aircraft was on a heading of about 80 degrees. It may or may not be significant that the Sun was at this time at an azimuth of 260 degrees, directly behind the aircraft.

The Star SAFIRE II records the altitude and azimuth of the object it is imaging at all times relative to its aircraft mount. The altitude of the UFOs is within a degree or two of the horizon with respect to the aircraft. The crew said that the objects were at the same elevation, i.e., on the horizon. The pitch of an aircraft in "level flight" depends on a number of factors, including its airspeed, trim, bank angle, the configuration of its flaps, gear, spoilers, etc. If the aircraft had a one to three degree pitch upward from its centerline (typical of normal flight), this needs to be figured into the altitude reading from the infrared sensor. It would mean that a "zero elevation" reading indicates that the sensor is pointed below the horizon, when looking backward.

During the main part of the UFO encounter, the object's azimuth is reading around –134 degrees, approximately the 7:00 position behind the aircraft. When plotted on a map showing the aircraft's position and heading, this points in the direction of the largest oil well platform complex in the Gulf of Campeche. From the video, the objects can be seen to be over water, but one cannot judge the altitude of the objects above the water, or their relative motion with respect to the water. When two brilliant UFOs are seen behind fluffy clouds (figure 1), the infrared camera is set to the medium zoom field of view, giving a field of 3.4 by 2.6 degrees. We are seeing the two main oil well platforms. Soon afterwards, the operator selects the narrowest field of view using the E-zoom feature. The field of view is only .04 by .03 degrees, which makes the objects appear about nine times larger. We see the result in figure 2, when individual flames are resolved on each oil platform, revealing nine or more "UFOs." If you compare this frame to the photo found on the Alcione Web site showing a daytime view of flames on the oil platforms, you will see that they match up quite well.

The objects appear to be moving *with respect to the clouds that pass in front of them*, giving the objects the illusion of motion. However, the motion of the aircraft with respect to the clouds, as well as the motion of the clouds themselves, causes the highly magnified lights to appear to shift position with respect to the clouds. Since the azimuth of the objects does not change significantly during the time they are being filmed, it is evident that the apparent motion of the objects with respect to the clouds is caused primarily by the motion of the aircraft with respect to clouds, and not by motion of the objects themselves. This situation is analogous to zooming in using a telephoto lens on a video camera, and pointing to a far away mountain. Then, while keeping the camera pointed to the mountain, walk along a treed path. The trees will have apparent angular motion (or optical flow) due to the camera's movement, while the mountain stays approximately still. When overworked, stressed, disoriented, and confined to looking at a three-dimensional scene on a two-dimensional display, it is easy for the crew to become confused regarding what is moving. All of the UFOs recorded by the Star SAFIRE II are on the left side of the aircraft, toward the Gulf of Mexico, with the great majority of them around –134 degrees.

**From the video, the objects can be seen to be over water, but one cannot judge the altitude of the objects above the water, or their relative motion with respect to the water.**

Discussing the image quality that we see in the UFO video, Miller explained:

> Unlike CCDs [charge-coupled devices, commonly-used photo detector systems], all infrared focal planes suffer from sensitivity drifts from pixel to pixel, and periodically require all scene pixels to be normalized. This is generally done by the user commanding it, then a "paddle," coated with a uniform black coating, is inserted into the field of view. Without this being done, images will possess "Fixed Pattern Noise" and these images all do. The vertical lines and dark splotches are classic infrared fixed pattern noise and limit operator effectiveness. They are not indicative of typical images from this system. Moreover, though these are infrared images, they suffer from the same poor quality that most "UFO" photographs suffer from—blurry, out of focus with incorrect exposures.
>
> In the 1990s a wonderful new technique to grind and shape infrared optics went into production. This is diffractive optics via diamond turning. A fixed fresnel-lens-like circular pattern is cut onto the lens surface (typically the back of the lens). This results in color-corrected optical systems with far fewer lens elements, thus saving significant cost and weight and size. The drawback is that this "ring" pattern scatters a small amount of light. The amount of this scatter is minimal and can be seen only with a bright overexposed image. This scatter from the diffractive optic pattern accounts for the halo effects of these overexposed images.

Unfortunately, the infrared sensor's recoded output is in a standard commercial video format (e.g., NTSC or PAL). These were the accepted video standards when the equipment was designed. The infrared focal planes have dynamic ranges of thirteen or fourteen bits, but the image-forming electronics compresses this wide range in a nonlinear fashion to make cosmetically appealing images on a six or eight bit capable display, a low-dynamic range for video recording. In other words, a lot of information gets lost. Unfortunately, just like your camcorder, the compression is adaptive based on scene statistics and details, and the settings are not recorded. This, along with other factors such as atmospherics, eliminates such airborne infrared system from recording any precise data, unlike common handheld thermographic and scientific cameras. From a videotape, one cannot glean any radiometric data, as it is all processed in an unknown manner with nonlinear and adaptive algorithms to make a clearly displayed image on conventional television. Also every copy degrades the tape, and every format (DVC, SVHS, VHS, etc.) imposes its own proprietary scaling and changes on the data, making reliable scientific measurement impossible.

The UFO believers who participate in the online UFO Updates forum, which includes many "leaders" of the UFO movement, laughed off the valid explanation of oil well fires as flippantly as they did the absurd ones. UFO author Ray Stanford scoffed at "oil rig flares tracked on radar at near the aircraft's altitude," of which neither statement was true: the radar targets were in a different direction entirely, and distant objects near the horizon may well be on the ground. Roswell champion David Rudiak scoffed at "invisible, flying oil wells," while Alfred Lehmberg suggested that skeptics might as well propose "soaring lighthouses and gassy pelicans." Others raised the specter of elves, angels, flaming seagulls, etc. Jaime Maussan argued that the flaming oil wells would not have been visible, because they were 125 to 200 km or more distant. He neglected to calculate that from an altitude of 3,500 meters, the horizon is nominally 211 km distant, and that atmospheric refraction typically extends this distance somewhat, depending on meteorological conditions, as also does the height above the water of the flames themselves.[7]

By their reaction, the "leaders" of UFOlogy have shown themselves incapable of distinguishing logical from illogical thought, and science from pseudoscience. The lesson of the Mexican Infrared UFO video illustrates once again the inability of the UFO movement to perform critical thinking.

## Notes

1. Miller is the author of the textbook *Principles of Infrared Technology: A Practical Guide to the State of the Art* (Kluwer Academic Publishers, 1994) and *Photonics Rules of Thumb* (McGraw-Hill, 2004), as well as two ancillary versions of *Photonics Rules of Thumb* (McGraw-Hill 1994 and 2003).

2. Information provided by Jaime Maussan. See www.virtuallystrange.net/ufo/updates/2004/may/m26-003.shtml.

3. See www.virtuallystrange.net/ufo/updates/2004/jun/m01-002.shtml.

4. At the Bay Area UFO Expo, San Jose, California, September, 2000. See "Reptoids and Martians Invade Silicon Valley" by Robert Sheaffer, SKEPTICAL INQUIRER, January 2001.

5. See Maussan's Web site about the videos at www.ovnistv.tv/noti_mayo/n_11mayo_reporte.htm.

6. See Franz's original posting at www.virtuallystrange.net/ufo/updates/2004/may/m27011.shtml. Alcione's Web site is at www.alcione.org.

7. See www.istp.gsfc.nasa.gov/stargaze/Shorizon.htm for an explanation of how to calculate the distance to the horizon as a function of elevation. □

---

*DID POPPER REFUTE EVOLUTION?*
*Continued from page 15*

survival of the fittest (and the much more important fact that s/he is going to have the most offspring) by means of natural selection, they have independent ways to assess which members of a population of organisms actually are the "fittest." For example, biologists employ optimization analyses to predict which combinations of morphological, behavioral, or physiological traits are more likely to be advantageous (i.e., to increase "fitness") in the range of environments actually encountered by a given living form. They then sample natural populations of organisms, determine in which environments they actually live, measure those traits they hypothesize are more likely to make a difference, and obtain statistical predictions on where natural selection should push the population next. Finally, biologists wait until the next generation of organisms comes out and measure their characteristics again.

If the theory were correct (and given some other verifiable conditions, such as the presence of adequate genetic variation for the traits in question), the population's mean for the characters under selection should have shifted in the predicted direction. This is an eminently falsifiable hypothesis, in the same sense in which predictions made by astronomers or physicists are falsifiable, and very much unlike the explanations of human behavior put forth by psychoanalysts, which are notoriously so flexible that they can fit (*a posteriori*) virtually any observed pattern.

The tautological circle thus broken, evolutionary biology can be fully admitted among the sciences even by the Popperian criterion of falsification. Much more than a useful metaphysical research program, the modern theory of evolution is as scientific as Newtonian mechanics, though by all means not as precise as, say, quantum mechanics. The distressing part of this story is how many creationists, and occasionally even professional philosophers, keep bringing up Popper's alleged refutation of evolution as if it were the last word on the subject. They often imply that evolutionary biologists are either dupes or, worse, consciously misleading the public into thinking that they are doing good science at the expense of that same public's generosity. For this, however, we cannot blame Popper, who demonstrated in his retraction a much higher intellectual standard than the people who attempt to exploit one of his mistakes in order to serve their parochial ideological agendas. □

# The Anthropic Principle and the Big Bang: Natural or Supernatural?

## *A Simple Probabilistic Answer*

*A vast literature is devoted to discussion of the anthropic principle. This article offers a simple discussion of the anthropic principle in Bayesian probabilistic terms. While it intentionally simplifies the problem, it demonstrates that interpretations of the anthropic principle based on the hypothesis of its supernatural origin can be refuted on simple probabilistic grounds.*

MARK PERAKH

The term *anthropic principle* started gaining popularity after 1973, when an English physicist, Brandon Carter, introduced it at a gathering of scientists on the occasion of the five hundredth anniversary of Copernicus's birth (Carter 1974). Carter noted that the values of physical constants must be within a very narrow range in order to enable the existence of life. Were any of the physical constants slightly different, life would be impossible. In other words, the universe appears to be "fine-tuned" for the existence of life.

Since then, the anthropic principle, as Carter's observation was labeled, has become a favorite subject of discussion by creationists of all varieties, who view it as a proof that the

Gerald Fried

universe—and more specifically intelligent life—could not emerge naturally but must have been created for a purpose and according to a detailed design by a supernatural agent (i.e., God). Discussions in this vein are found in publications by Hugh Ross (1998), Nathan Aviezer (1999), Fred Heeren (2000), Patrick Glynn (1999), Walter L. Bradley (2001), and many others.

Of course, those adherents of such a view, who approach it from a Christian perspective, interpret it differently from those who are believing Jews. For the former, the anthropic principle points to Jesus Christ as the creator of the universe, whereas for the latter, Jesus has nothing to do with the creation of the world by Yahweh (Jehovah). Even if we agreed that the anthropic principle proves the creation of the universe by a supernatural agent, it still would leave many variations of that explanation equally possible. Without contradicting the general supernatural interpretation of the anthropic principle, one can just as well guess that the creator of the world was the biblical Yahweh or Quetzalcoatl . . . or Krishna or Jupiter or a band of smaller gods all working in cahoots.

However, in this article, I will try to show that the above interpretation is unsubstantiated in general, regardless of the particular choice of a candidate for the role of supernatural creator of the world. I suggest that if the universe is indeed fine-tuned for life, this does not logically point to the supernatural creation of the world and of life; such an interpretation is just one of many possible, equally arbitrary assumptions.

First, let us note that since Carter's introduction of the concept, a number of versions of the anthropic principle have been offered. One version is referred to as the Weak Anthropic Principle (WAP). For example, here is how the famous physicist Stephen Hawking defines the WAP in his popular book *A Brief History of Time* (Hawking 1988): "The weak anthropic principle states that in a universe that is large or infinite in space and/or in time, the conditions necessary for the development of intelligent life will be met only in certain regions that are limited in space and time. The intelligent beings in these regions should therefore not be surprised if they observe that their locality in the universe satisfies the conditions that are necessary for their existence." From that definition, we see that the WAP does not require the assumption of a supernatural agent being responsible for the creation of the universe and of life.

Another version of the anthropic principle is referred to as the Strong Anthropic Principle (SAP). If we look at Hawking's definition of the SAP (Hawking 1988), we likewise see that it does not imply the SAP's supernatural origin.

One more version of the anthropic principle was offered under the name of the Participatory Anthropic Principle (Barrow and Tipler 1986). It (mis)used the concepts presented in the "Copenhagen interpretation" of quantum mechanics. This version implies that the very existence of the universe can only be understood within the framework of an intelligent mind observing the universe.

Barrow and Tipler also suggested the so-called Final Anthropic Principle (FAP) which goes even further, positing

*Mark Perakh is an emeritus professor of physics. He got his two doctoral degrees (in technical/engineering physics and electrochemistry) in the former U.S.S.R. He has taught physics and related disciplines for more than half a century in four countries, and has lived in the U.S. since 1978. He has authored about 300 scientific papers and has written several articles on intelligent design. His new book,* Unintelligent Design, *was reviewed in our July/August 2004 issue. He lives in Escondido, California. E-mail: marperak@cox.net.*

that the very existence of the universe is due to the human mind observing it. Reviewing all described versions of the anthropic principle, Martin Gardner (1986) suggested an all-embracing, derogatory term: "CRAP, the Completely Ridiculous Anthropic Principle."

While one can be skeptical regarding the esoteric interpretations of observed values of physical constants, the very fact of the constants being seemingly "fine-tuned" for the existence of life has been rather commonly accepted (although certain arguments may be offered that cast doubts on the real "fine-tuning" of physical constants—see, for example, Klee 2002). The question is, though, what is the meaning of the apparent hospitality of the universe for the existence of life, if such hospitality is indeed a fact. Depending on the preferred answer to that question, we can see two opposite interpretations of the mentioned "fine-tuning." One interpretation perceives in the fine-tuning of the physical constants an indication of the creation of the universe by a supernatural agent (God or gods) for a purpose and according to a plan. The opposite interpretation looks for a natural explanation of the fact that the universe seems to be fine-tuned for life.

I denote all versions of the anthropic principle that imply only a natural origin of life in our universe as the Natural Anthropic Principle (NAP), and all those versions that imply a supernatural creator or creators as the Supernatural Anthropic Principle (SNAP).

My analysis will be probabilistic and will be deliberately simplified, omitting subtle details. I will estimate what the probability is that the fine tuning of the universe for life (if such fine tuning is a fact) indicates a supernatural creation of the universe versus the probability that the universe had no supernatural creator.

Before turning to the probabilistic presentation of the anthropic principle, let's make a brief excursion into some seminal concepts of probability theory.

Let p(A&B) be the probability that two events A and B both take place. The probability theory tells us that if A and B are independent events, then:

$$p(A\&B)=p(A)\times p(B) \qquad (1)$$

However, if A and B are not independent, i.e., if the occurrence of A changes the probability of B, then we have instead of (1):

$$p(A\&B)=p(A)\times p(B|A) \qquad (2)$$

where p(A) is the probability of event A, and p(B|A) is the conditional probability of event B provided event A takes place. Likewise, we can write:

$$p(B\&A)=p(B)\times p(A|B) \qquad (3)$$

Since A and B are arbitrary notations, which may be swapped, we can write:

$$p(A\&B)=p(B\&A) \qquad (4)$$

which, comparing (2) and (3), yields:

$$p(A)\times p(B|A)=p(B)\times p(A|B) \qquad (5)$$

From (5) we get a universal relation:

$$p(A|B)/p(A)=p(B|A)/p(B) \qquad (6)$$

Our equation (6) could have simply been presented as a consequence of Bayes's theorem, well known in the study of probability (see, for example, Howson and Urbach 1993). Alternatively, Bayes's theorem can be derived from equation (6). For this discussion, we will limit ourselves to the particular, simplified form of Bayes's theorem presented as equation

**The question is, what is the meaning of the apparent hospitality of the universe for the existence of life, if such hospitality is indeed a fact.**

**Bayes's theorem** (published posthumously in 1764) shows how the probability of certain events being the causes of other events changes if those events actually take place. It considers a set of random, mutually exclusive events $A_1, A_2 \ldots A_n$, which are unobservable, while one of them must necessarily take place (they are referred to as "causes"). Each of the "causes," if it occurs, leads to a consequent event $E_i$ which can be observed. Probability $P(A_i)$ of event $A_i$ being the cause of $E_i$ (before $E_i$ has been actually observed) is referred to as "a priori probability." If event $E_i$ has been actually observed, the probability of $A_i$ being the cause of the observed event changes to $P(A_i|E_i)$, referred to as "a posteriori probability." The third concept in Bayes's theorem is probability $P(E_i|A_i)$ of event $E_i$ occurring provided $A_i$ takes place (referred to as "likelihood"). Bayes's theorem shows the relationship among the three probabilities—a priori probability, a posteriori probability, and likelihood. It shows how the probability of a certain antecedent ("cause") changes if different consequents actually occur.

Bayesian reasoning quantifies the intuitive evaluation of the plausibility of a hypothesis in the light of its expected consequences being actually observed.

My equation (6) is a particular case of Bayes's theorem which limits the situation in question to a choice between only two possibilities, while the full form of the theorem also embraces cases with multiple choices.

(6). It is easy now to succinctly represent any version of the anthropic principle in probabilistic terms. For example, for NAP and SNAP, it can be done as follows:

**NAP (Natural Anthropic Principle):** Let p(FT) be the unconditional probability that a certain universe is fine-tuned for life. Let p(FT|L) be the conditional probability that a universe is fine-tuned for life provided life exists in that universe. Let p(L) be the unconditional probability that life exists in a universe, and p(L|FT) the conditional probability that life exists in a universe provided that that universe is fine-tuned for life. The equation (6) becomes:

$$p(FT|L)/p(FT)=p(L|FT)/p(L) \qquad (7)$$

The NAP then boils down to the statement that:

$$p(FT|L)\gg p(FT) \qquad (8)$$

The meaning of (8)—the probabilistic representation of the Natural Anthropic Principle—is the assertion that the existence of life in a universe makes it much more probable that the universe in question must be fine-tuned for life (as compared with a universe where there is no life). From (6), it then follows that:

$$p(L|FT)\gg p(L) \qquad (9)$$

The meaning of (9) is that if a universe is fine-tuned for life, this considerably enhances the probability that life will exist in that universe (as compared with a universe which is not fine-tuned for life). This is a reasonable assumption (some readers may even view it as self-evident). If (9) holds, (8) holds as well. Hence, the NAP seems to be a reasonable and logically faultless assumption.

**SNAP (Supernatural Anthropic Principle):** This interpretation of the anthropic principle is based on the assertion that the existence of life in our universe is best explained by assuming that the universe was intentionally "fine-tuned" by a supernatural intelligent agent. In probabilistic terms, this position can be expressed by the following inequality:

$$p(S|FT)\gg p(S) \qquad (10a)$$

where p(S) is the unconditional probability of a supernatural creation of the universe and p(S|FT) is the conditional probability of a supernatural creation provided the universe in question is fine-tuned for life. Expression (10a) states that the fine-tuning of our universe makes much more probable its supernatural origin as compared with a universe which is not "fine-tuned" for life.

According to the proponents of the SNAP, life would be impossible without the "fine-tuning." Therefore, the conditional probability p(S|FT) in the expression (10a) may be replaced by p(S|L), which is the conditional probability that our "fine-tuned" universe was created by a supernatural agent, provided life exists in that universe (as compared with a universe where there is no life).

Then, in probabilistic terms, the SNAP can be rendered by the following expression:

$$p(S|L)/p(S) \gg 1 \qquad (10b)$$

where p(S) is the unconditional probability that a universe was created supernaturally, and p(S|L) is the conditional probability that a universe was supernaturally created provided life exists in that universe.

The relation (6) is for this case as follows:

$$p(S|L)/p(S)=p(L|S)/p(L) \qquad (11)$$

where p(L|S) is the conditional probability of life existing in a universe provided that the universe was created supernaturally. To satisfy (10) and (11) we must assume that:

$$p(L|S)\gg p(L) \qquad (12)$$

The meaning of (12) is that if we know that the universe was created supernaturally, this knowledge increases the probability p(L|S) of life's existence in such a universe compared to the probability p(L) of life's existence in the absence of knowledge of supernatural creation. This implies that the supernatural creator of a universe must also have necessarily wished to have created life in it. This is an arbitrary assumption, since we have no knowledge of what a supernatural creator of a universe may have wished or not wished to do. The SNAP, therefore, [expressions (10a) and (10b)] are also arbitrary assumptions. Hence, the Supernatural Anthropic Principle is logically unsubstantiated and is an arbitrary assumption.

The conclusion that a universe fine-tuned for life implies a supernatural creator is an example of circular reasoning. In order to conclude that $p(S|L)\gg p(S)$, which is a succinct representation of the SNAP, we must first assume that $p(L|S)\gg p(L)$, i.e., assume *a priori* the existence of a supernatural agent who wished and planned to create life. But the latter assertion is exactly what was to be proven by the entire discourse.

Of course, establishing the arbitrariness of an assumption does not mean that such an assumption is necessarily wrong. It does mean, though, that one may not assert that such an assumption is correct. At best, the question about the correctness of such an assumption remains open until some convincing proofs of its being either correct or not are found. As the matter stands now, no such proofs have been suggested, so the assertion that the values of physical constants point to the supernatural origin of the universe and life remains an unsubstantiated assumption, reflecting religious preferences rather than factual evidence.

The preceding probabilistic discourse has shown that the supernatural interpretation of the anthropic principle, so popular among proponents of creationism, both of explicit and implicit kinds, is logically unsubstantiated. An investigation of the logic of that proposition on a more sophisticated level, such, for example, as that by Michael Ikeda and Bill Jefferys (2001), has provided an even stronger refutation of the hypothesis of a supernatural creation of life. Their discourse seems to show that the more "fine-tuned" for life a universe is, the less likely is its supernatural origin.

The discussion above can be applied, with a slight modification, to the discussion of a logical procedure known as

*abduction*. William A. Dembski and Stephen C. Meyer (2000) provide an explanation of the abduction procedure which differs in some respects from its conventional interpretation. Since this discussion is about Dembski and Meyer's use of abduction in their attempt to prove the divine source of the Big Bang, I will discuss their paper adopting their definition of abduction. They compare deduction with abduction.

Deduction is a process wherein, first, a certain event A is believed to have actually happened. If some other event B is an inevitable consequence of A (we say in that case that A *entails* B), we infer from the occurrence of A that B necessarily must occur as well. Dembski and Meyer present the deduction procedure in the following form:

Data: A is given and plainly true.
Logic: But if A is true, then B is a matter of course.
Conclusion: Hence, B must be true as well.

And here is how Dembski and Meyer present the abduction procedure:

Data: The surprising fact A is observed.
Logic: But if B were true, then A would be a matter of course.
Conclusion: Hence, there is a reason to suspect that B is true.

It seems obvious that the inference in the case of deduction is very strong and the conclusion is as certain as it possibly can be. However, in the case of abduction, the inference is only tentative—it only indicates the *possibility* of B being true. Indeed, while if B were true, A would be a matter of course, it does not mean that there are no other antecedents—C, D, E, etc.—which would entail A as well, and therefore the occurrence of A (the consequent) does not define the antecedent as being necessarily B, but only indicates that B is one of the possible antecedents.

The inference to the supernatural origin of the Big Bang offered by Dembski and Meyer (2000) is an example of an improper application of the abduction procedure.

Indeed, let p(S) be the unconditional probability that there is a supernatural agent responsible for the creation of the universe. Let p(S|BB) be the conditional probability of the existence of that supernatural agent provided the Big Bang has indeed occurred. Let, further, p(BB) be the unconditional probability of the Big Bang's occurrence, and p(BB|S) be the conditional probability of the Big Bang's occurrence provided there is a supernatural agent responsible for the creation of the universe. Then, our particular version of Bayes's theorem—equation (6)—takes the form:

$$p(S|BB)/p(S)=p(BB|S)/p(BB) \qquad (13)$$

The abduction inference, according to Dembski and Meyer's schema, if presented using the above version of Bayes's theorem, can be as follows: Since, as they maintain, there exists no good explanation entailing any natural cause of the Big Bang, then, in their view, the hypothesis of a supernatural agent being the source of the Big Bang is a better explanation. Hence, if the Big Bang occurred, this enhances the probability of a supernatural agent being its source:

$$p(S|BB)\gg P(S) \qquad (14)$$

Note that (14) renders the *conclusion* of Dembski and Meyer's abduction argument in probabilistic terms.

In accordance with (13), if (14) holds, then also:

$$p(BB|S)\gg p(BB) \qquad (15)$$

In plain words, relation (15) asserts that the existence of a supernatural creator substantially enhances the probability of the occurrence of the Big Bang. This relation renders the "logic" step of Dembski and Meyer's abduction inference in probabilistic form. (The "data" step of their abduction argument is the assumption that the Big Bang had actually occurred.) Hence, according to Dembski and Meyer's abduction inference, if we assume that the Big Bang had actually occurred, there is a good reason to assume that a supernatural agent does exist, which is expressed by inequality (14).

*The fallacy of that inference is in the inequality (15):* $p(BB|S)\gg p(BB)$. This assumption asserts that the probability of the actual occurrence of the Big Bang is substantially enhanced if there is a supernatural creator of the universe. In non-probabilistic terms of the abduction inference, it means that if a supernatural agent responsible for the creation of the universe does exist, the Big Bang is a matter of course. This is an arbitrary assumption, because we have no knowledge about how a supernatural agent might act. If the assumption in (15) is arbitrary, so is the conclusion—inequality (14).

Again, the arbitrariness of the above assumption does not prove that it is wrong. However, it shows the lack of substantiation for Dembski and Meyer's hypothesis of a supernatural origin of the Big Bang, which is only one of many possible explanations. It has no advantage over any other explanation, including those denying supernatural creation.

## References


Aviezer, Nathan. 1999. The anthropic principle. *Jewish Action* 19:9–15.

Barrow, John D., and Frank J. Tipler. 1986. *The Anthropic Cosmological Principle*. New York: Oxford University Press.

Bradley, Walter L. 2001. The 'just so' universe: The fine-tuning of constants and conditions in the cosmos. In *Signs of Intelligence*. W. Dembski and M. Kushiner, eds. Grand Rapids, Michigan: Brazos Press.

Carter, Brandon. 1974. Large number coincidences and the anthropic principle in cosmology. In *Confrontation of Cosmological Theory with Astronomical Data*. M.S. Longair, ed. Dordrecht, Holland: Reidel. 291–298.

Dembski, William A., and Stephen C. Meyer. 2000. Fruitful interchange or political chitchat? In *Science and Evidence for Design in the Universe*. M.J. Behe, W.A. Dembski, and S.C. Meyer, eds. San Francisco: Ignatius Press.

Gardner, Martin. 1986. WAP, SAP, PAP and FAP. *The New York Review of Books*, May 8.

Glynn, Patrick. 1999. *God: The Evidence*. Rocklin, California: Forum Publishers.

Hawking, Stephen. 1988. *A Brief History of Time*. New York: Bantam Books.

Heeren, Fred. 2000. *Show Me God*. Wheeling, Illinois: Day Star Publications.

Howson, C., and P. Urbach. 1993. *Scientific Reasoning: The Bayesian Approach*. LaSalle, Illinois: Open Court.

Ikeda, Michael, and William Jefferys. 2001. The anthropic principle does not support supernaturalism. Available online at www.talkreason.org/articles/super.cfm.

Klee, Robert. 2002. The revenge of Pythagoras: How a mathematical sharp practice undermines the contemporary design argument. *British Journal for the Philosophy of Science* 53:331–354.

Ross, Hugh. 1998. Big Bang model redefined by fire. In *Mere Creation*. W. Dembski, ed. Downers Grove, Illinois: InterVarsity Press. 363–384. □

# Alternative Medicine and the Biology Departments of New York's Community Colleges

## *A Survey*

*Chiropractic is increasingly being integrated into—and legitimized by—community college science departments, an association that confuses science-based academic biology with a field rife with pseudoscientific and antiscientific practices.*

FRANK REISER

The catalogs of six community colleges within the State University of New York (SUNY) and City University of New York (CUNY) systems list chiropractors as holding either full or part-time biology teaching positions (Bronx 2002, Corning 2002, Hudson Valley 2002, Monroe 2002, Nassau 2003, Orange 2003). This runs counter to the National Science Foundation's recommendation that it is the responsibility of the professional scientific community to help the public discern between pseudoscience and genuine scientific discourse. In particular, the NSF uses credence in alternative medicine as a factor when assessing scientific literacy in Americans (National Science Foundation 2002). In addition, many community colleges

Gerald Fried

have formed transfer alliances with chiropractic schools, and some catalogs list these transfer programs as associated with the school's science department (Columbia-Greene 2002, Herkimer 2001, Nassau 2003, Rockland 2002). In several instances, community college catalog descriptions imply that transferring to a chiropractic school is an option for students wishing to continue their education in the sciences (Columbia-Green 2002, Herkimer 2001, Rockland 2002). One college erroneously lists New York Chiropractic College as part of the SUNY system (Alfred 2002, 53). Finger Lakes Community College has embarked on a program of sharing science faculty and using the facilities at New York Chiropractic College to provide an "accelerated science" education program (New York Chiropractic College Fall 2001, Summer 2001).

Schools of chiropractic study are actively seeking to associate with college science departments, as well as with established medical organizations. These affiliations, no matter how weak, are publicized in an attempt to validate chiropractic practice as having a scientific basis. Chiropractic institutions graduate approximately 4,000 "chiro-doctorates" a year in an already crowded market (Chotkowski 2002). Administrators of these schools tell their students that a chiropractic education prepares them for careers in research and education. To quote the president of New York Chiropractic College, "We inform our students that upon completion of our program, in addition to private practice, they may also be interested in conducting research or serving as educators in an academic setting" (Nicchi 2000). The number of chiropractors applying for teaching positions at New York's community colleges increases every year.

New York State's community college catalogs indicate that ten faculty members who hold chiropractic degrees currently teach biology within the system (Bronx 2002, 158; Corning 2002, 191; Hudson Valley 2002, 257; Monroe 2002, 234–235, 240; Nassau 2003, 156, 164, 166, 169; Orange 2003, 230). In addition, at least one of these schools also awards salary equivalency to the Ph.D. for the doctorate of chiropractic. In contrast, a similar review of New York State's four-year college catalogs reveals a total absence of chiropractors among biology faculty. Community colleges are primarily teaching institutions; as such, the review process for tenure and promotion presents a different constellation of issues from those of four-year colleges, including the balance between research, publication, teaching, and scholarship (Gehhardt 1997). Examination of community college promotion and tenure applications shows heavy emphasis on teaching and on-campus committee service. Scholarly work in one's field, demonstrated by publication and conference participation beyond attendance, contributes only ten percent toward an applicant's score (Nassau 2003; Suffolk 2003). The promotion and tenure process has both reinforced the community college

*Frank Reiser is a biology professor and past-president of the Empire State Association of Two-Year College Biologists. E-mail: reiserf@ncc.edu.*

commitment to teaching as well as insulated its faculty from off-campus peer review. This remoteness has led to what has been described as the "academic invisibility" of community college faculty in higher education (Seidman 1998, 36). A Carnegie Foundation survey discovered that 75 percent of community college faculty members attended one or no national professional meetings. In addition, 75 percent were not engaged in any scholarly work that might lead to publication, 82 percent had not published (nor had any professional writings accepted for publication) in the last two years, and 65 percent had never published in an academic or professional journal (Lyons 1989, 1). According to University of Connecticut professor Lynn Z. Bloom, in her study on the need for external review of faculty accomplishments, the decisions of faculty hiring committees will "reflect the prevailing norms of their intramural culture" (Gehhardt 1997, 63, 70). Stated bluntly, community colleges are a soft target for the chiropractic profession to gain acceptability in science academia.

In New York State, half the students in public colleges and universities (SUNY) are enrolled in community colleges (McCall 1999, 1). A large percentage of graduates will pursue advanced degrees. Many non-science master and doctorate degree programs do not require additional science credits beyond what has been taken at the community college level. This leads to an important question: Should such critical exposure to the sciences be under the direction of a practitioner whose highest degree represents an epitome of skill in the anti-scientific philosophies upon which chiropractic is based?

The statement recently passed by the Empire State Association of Two-Year College Biologists (ESATYCB) discouraging any association between alternative medicine and academic departments of biology (see News & Comment, SKEPTICAL INQUIRER, May/June 2004) may be futile in the face of the precedents already established by many New York State community colleges.[1] Other states are hiring chiropractors as science educators in community colleges, but the practice, at this time, is not universal (Bergen County 2002, Volunteer State 2003). Direct inquiries and a review of former catalogs indicate that the acceptability of alternative medicine practitioners is a recent and accelerating trend. Many of New York's community college faculty members are expected to retire within the next few years, adding urgency to this critical issue.

Hopefully the stand taken by the ESATYCB will prompt investigations into the pitfalls of assimilating alternative medicine degrees and philosophies into academic biology departments. The fusion will adulterate scientific standards in undergraduate biology education by confusing science-based information with the pseudoscience and anti-science endemic in alternative medicine. The educational effects will be lasting and will extend beyond the walls of each institution. Community college biology departments must not become the weak link in the chain of science education. A dialogue is essential to maintain a continuity of scientific standards between community college educators, members of the scientific community, and the science faculty at the four-year colleges and universities to which community college students transfer.

## Note

1. "The Position of the Empire State Association of Two-Year College Biologists on Alternative Medicine" states: "The Empire State Association of Two-Year College Biologists strongly disapproves of the association of academic biology departments at two-year colleges with unscientific and anti-scientific philosophies and practices. These are common among Chiropractic, Naturopathy, Homeopathy and many other practices known as 'complementary and alternative medicine.' Such affiliations are likely to undercut scientific and critical thinking in the curriculum and hinder colleges trying to maintain high standards in science education. Additionally, such associations serve to legitimize unscientific and anti-scientific philosophies and practices and weaken the public's understanding of science at a time when a full appreciation of the scientific method is sorely needed. Position adopted by majority vote on November 10, 2003."

## References


Alfred State College of Technology. 2002. 2002–2003 Catalog and Announcements. Alfred, New York.

Bergen County Community College. 2002. Catalog 2002–2003. Paramus, New Jersey.

Bronx Community College. 2002. Catalog 2002–2004. New York, New York.

Chotkowski, Ludmil A. 2002. *Chiropractic: The Greatest Hoax of the Century?* Kensington, Connecticut: New England Books.

Columbia-Green Community College. 2002. Catalog 2002–2003. Hudson, New York.

Corning Community College. 2002. Catalog 2002–2003. Corning, New York.

Empire State Association of Two-Year College Biologists. 2002. Annual Conference. Roundtable Discussion. Williams Lake, New York.

Gehhardt, Richard C. 1997. *Academic Advancement in Composition Studies: Scholarship, Publication, Promotion, Tenure.* Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Herkimer County Community College. 2001–2003. Catalog. Herkimer, New York.

Hudson Valley Community College. 2002. Catalog 2002–2003. Troy, New York.

Lyons, Linda. 1989. *Faculty Perceptions of the Institutional Environment: The Design and Implementation of a Faculty Survey.* Baltimore, Maryland: Association for Institutional Research.

McCall, Carl H. 1999. *Cost Effective Engines of Educational Access and Economic Development.* New York Comptroller's Community College Report. Albany, New York.

Monroe Community College. 2002. Catalog 2002–2003. Rochester, New York.

Nassau Community College. 2002. Catalog 2003–2003. Garden City, New York.

———. 2003. *Application for Promotion and Tenure.* Garden City, New York.

National Science Foundation. Division of Science Resource Statistics. 2002. *Indicators 2002. Science and Technology: Public Understanding and Public Knowledge.* Arlington, Virginia.

New York Chiropractic College. Public Affairs Office. August 2003. *Transitions.* Seneca Falls, New York.

———. Summer–Fall 2003. *Transitions.* Seneca Falls, New York.

———. Summer–Fall 2002. *Transitions.* Seneca Falls, New York.

———. Fall–Winter 2001-2002. *Transitions.* Seneca Falls, New York.

———. Summer–Fall 2001. *Transitions.* Seneca Falls, New York.

———. Fall–Winter 2001. *Transitions.* Seneca Falls, New York.

———. Spring 2001. *Transitions.* Seneca Falls, New York.

Nicchi, Frank J. 2000. Letter of correspondence between the President of New York Chiropractic College and Sean Fanelli, President of Nassau Community College. September 20. Garden City, New York.

Orange County Community College. 2002. Catalog 2003. Middletown, New York.

Rockland County Community College. 2002. Catalog 2002–2005. Suffern, New York.

Seidman, Earl. 1986. *In the Words of the Faculty: Perspective on Improving Teaching and Educational Quality in Community Colleges.* San Francisco: Jossey-Bass Educational Series.

Suffolk Community College. 2003. Promotion Application. Riverhead, New York.

Volunteer State Community College. 2002. Catalog 2002–2003. Gallatin, Tennessee. □

# Labyrinths: Mazes and Myths

*The use of labyrinths began as a New Age fad but has quickly gone mainstream, with dozens of books, magazine articles, organizations, Web sites, and seminars devoted to the topic. The patterns have spread from back yards to churches, public parks, and even medical centers. Despite the popularity of labyrinths, literature on the subject is rife with anti-scientific, paranormal beliefs and the movement has escaped any in-depth critical examination.*

BENJAMIN RADFORD

Across America—and indeed across the world—curious designs are appearing on the landscape. The patterns have spread from back yards to churches, public parks, and even medical centers. Thousands, perhaps tens of thousands, of people have created and used the designs as meditative, spiritual, and even therapeutic tools. The labyrinth, though present in many places and eras, has never been so discussed, used, and revered as at the turn of the twenty-first century. What began as a New Age fad has quickly gone mainstream, with dozens of books, magazine articles, organizations, Web sites, and seminars devoted to labyrinths.

On a physical level, a labyrinth is a single-path, maze-like pattern. Yet while a maze is confusing, one cannot get lost in

Figure 1. A classical seven-circuit labyrinth design.

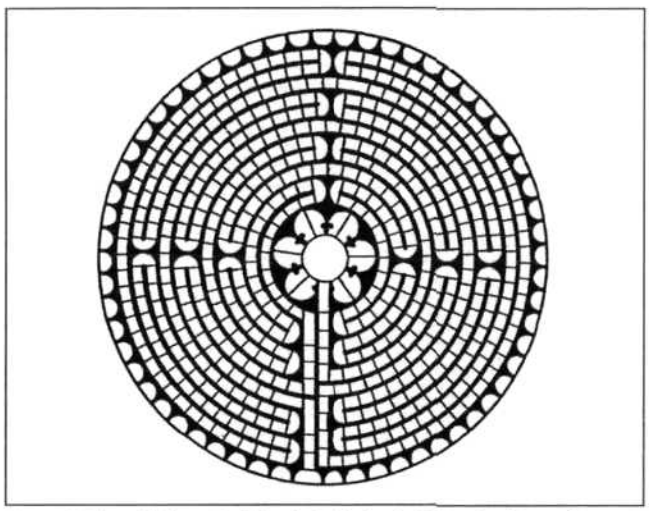


Figure 2. The widely copied labyrinth design inlaid in the floor of France's Chartres Cathedral.

a labyrinth; there is only one path in and out. You begin at an opening at the outside, make your way to the center (the "rosette") and back out. The labyrinth's simplicity is both attractive and symbolic.

On a metaphysical level, the labyrinth is variously described as "a single path spiritual tool that is a right brain enhancer" (Labyrinth Society brochure 1999); "a lens that brings our collective unconscious into focus on a personal level while at the same time aligning us with the larger forces at work in the galaxy"; and a "sacred space, a place where you can take chaos and bring it to order" (*Explorations 2000*). A labyrinth is a bridge "between the ancient and the modern," and walking one is a "simultaneous spiritual-aesthetic-political act" (Schaper and Camp 2000, 151). It is, in essence, anything the user wishes it to be.

*Benjamin Radford is author of numerous articles on the paranormal, fringe science, and media literacy. His latest book is* Media Mythmakers: How Journalists, Activists, and Advertisers Mislead Us *(Prometheus 2003). His Web site is www.radfordreviews.com.*

## Origins

The labyrinth is an ancient symbol, and though its exact origins are murky, early versions have been found in Crete and Italy. Many sources cite Egypt as the source of the labyrinth (e.g., Grimble 1970, James 1992), where it "was the scene of religious dramas involving the god-king in the shape of a bull." The bull motif carried over into later incarnations; the most famous legend involving a maze or labyrinth is that of Theseus, who slew the bull-headed Minotaur inside a maze and found his way out with a line of thread. The labyrinth design is clearly laden with symbolic meanings, many of them involving universal themes of death and rebirth.

In their book *Labyrinths from the Outside In*, Donna Schaper and Carole Ann Camp tell of fishermen in Sweden, Finland, and Estonia building labyrinths as good-luck tools. They "walked them before going out to sea to ensure a good wind and a good catch. The fishermen would walk into the labyrinth slowly, presumably with trolls, who represented ill-fated intentions, following them. Then they would run out of the labyrinths quickly and jump in their boats, leaving the slow-thinking trolls behind stuck in the labyrinth."

Labyrinths have been found in the Americas too: The Hopi Indians of North America used the classical seven-circuit labyrinths. Though many writers (e.g., Middendorf 2000, Schaper and Camp 2000) have claimed that the giant earthen Nazca Lines in Peru are labyrinths, this is inaccurate. Like labyrinths, the designs—some clearly of animals such as monkeys, spiders, and birds—are unicursal (made with one continuous, uncrossed line), but lack the distinctive labyrinthine pattern entirely.

The recent surge of interest in labyrinths is largely due to Rev. Lauren Artress, author of *Walking a Sacred Path*, which is widely regarded as the bible of the labyrinth "revival." Her 1995 book crystallized much of the interest in labyrinths, and she remains a popular speaker and activist.

There are several types of labyrinths; one of the most common is the seven-circuit form (see figure 1). The most influential labyrinth design is inlaid on the floor of France's Chartres Cathedral (figure 2); that pattern has been duplicated on hundreds of floors, walls, and canvases. Labyrinths can be made of chalk, cloth, stones, or well-placed shrubbery; others, like one in downtown Toronto (figure 3) are cultivated in grass. Still others, like the Labyrint Waalkade in Nijmegen, Holland (figure 4), are created from stone and water.

Walkers enter the labyrinth and make their way around the turns toward the center. The center is the destination, but it is, of course, still only the halfway point. While there, some people leave offerings on the rosette (figure 5). At a labyrinth in Lily Dale, New York, for example, I found fifty-seven cents in change, a small black feather, a few leaves, and a half-finished cigarette. (Whether the smoker resolved to give up smoking then and there has always been a mystery to me, but I like to think so.) On the way back out, walkers are encouraged to focus on any revelations, healings, experiences, or answers that may have come to them. Though labyrinths are often used for meditation and relaxation, they are also employed for various

ceremonies such as graduations, coming-of-age rituals, and so on. (In fact, my mother recently got married in a labyrinth she created on her property.) Sometimes the walks are accompanied by chanting, drums, or other music. The journey can take a surprisingly long time to complete, especially in large patterns.

## Labyrinths, the New Age, and Imagination

At first glance, labyrinth walking seems like little more than a harmless, if curious, pastime. To some degree it is, but the movement also has surprising—and disturbing—anti-science and paranormal roots. New Age feminism also plays a prominent role in labyrinth literature.

For example, the book *Walking a Sacred Path* frequently portrays our modern world as too rational, unimaginative, and out of touch with wisdom, and the twelfth and thirteenth centuries as the good old days of unreason when our connection to the earth was strong. Author Artress sees the labyrinth as a tool for reconnecting both with imagination and femininity. "The labyrinth stands with a tradition that recaptures the feminine sense of the Source. It utilizes the imagination and the pattern-discerning part of our nature. . . . Due to the loss of the feminine, many of us are out of touch with the depths of our beings, our Source. The feminine must be enlivened and welcomed back into our male-dominated world so integration can begin to occur—between feminine and masculine, receptive and assertive, imagination and reason" (14).

Though this paradigm is appealing to many, it is also simplistic and somewhat contradictory. Artress provides no evidence that Medieval spirituality was all that great to begin with, and just assumes that our forefathers were happier, more imaginative, and more spiritually connected than ourselves. This sort of false nostalgia is common in today's New Age circles, with their emphasis on "ancient wisdom," "lost knowledge," etc. Barbara G. Walker, writing in the SKEPTICAL INQUIRER, cautions against taking the male/female dichotomy too far: "We [feminists] are in danger of going too far into our own brand of dualism, when we label patriarchal and bad everything that is modern/scientific, while declaring matriarchal (or natural) and good everything that is primitive/magical. At the same time, we accept with off-handed ingratitude the gifts of technology that are made available to us every day: electric light, radio, television, telephones, trains, airplanes, cars, [and] computers. . . . Only science, with its objective, 'linear' approach, could have discovered bacteria, viruses, [and] antibiotics. . . . Almost everything that we can claim to know with any certainty about our world has been learned through science and not by subjectivity, instinct, or insight" (Walker 1993).

Artress discusses the value of imagination at length in her book (it is one of the longest sections), and it's clear why: Imagination is very important to experiencing the powers of the labyrinth. "The labyrinth is an evocative tool. It works through the imagination and the senses" (Artress 1995, 97). In other words, the more imagination you have, the better the labyrinth will work for you.

Artress believes that the spiritual crisis she sees in our society is partly the result of a lack of imagination. "We are beginning to realize that Western civilization—held together by rationalism, empirical research, and man's control of nature—*is coming apart. . . . As we in the West learned to use our rational minds*, we developed a sense of superiority that denied our intuition and imagination their rightful place among the human faculties we need to survive" (Artress 1995, 106). (Non-Western cultures might find Artress's implication that they never learned to be rational rather insulting.)

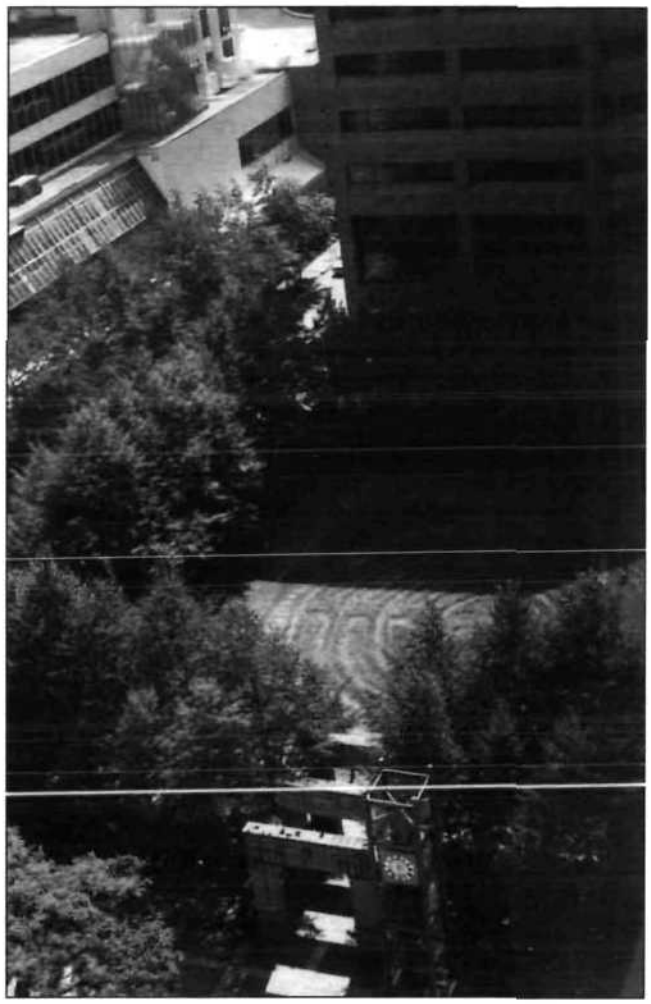


Figure 3. The Trinity Square Park Labyrinth in downtown Toronto was installed in 2000, one of the first in a Canadian public park. All photos by Benjamin Radford.

Other writers see labyrinths not so much as fulfilling a void of imagination as serving as a kind of user-friendly spirituality. Donna Schaper, coauthor of *Labyrinths from the Outside In*, believes that many people are shunning the traditional, rigid rituals of religion and "widening their claim to worship in nature—hiking a mountain, for example, rather than sitting in a designated worship space." In this way, labyrinths are a more accessible path to God or enlightenment. With some caveats, labyrinth walkers can take a spiritual journey on their own terms, when they wish, how they wish, and (using portable canvas labyrinths), more or less where they wish. Many churches have embraced labyrinths and built them on their grounds.

Figure 4. A stone and water labyrinth near the Waal river in Nijmegen, Holland.

## Anti-Science

At times the anti-science and anti-rationality rhetoric surrounding labyrinths is alarming. A blurb in *Walking a Sacred Path* from an organization called Mind Body Spirit states, "One strong lesson of the labyrinth is the physical realization of the continuum of life. . . . [I]t is clear that linear, logical thinking is no longer a roadmap we can trust." I hope this is most decidedly *not* the message that most labyrinth walkers get. To dismiss logic and rationality as fundamentally untrustworthy is deeply wrongheaded and dangerous.

Artress (echoing the statements made by many promoters of pseudosciences) admits that "We do not really know how or why the labyrinth works" (Artress 1995, 177). Yet, depending on what exactly the claim is, we do in fact know why labyrinths "work." If you believe that walking a labyrinth (or listening to trickling water or meditating in front of a candle) will calm you, then it probably will. There is nothing mystical about it; it's simple psychology.

One woman went so far as to put her faith in the labyrinth *because* she doesn't understand it: "It is precisely because I do not understand 'how it works' that I trust and honor it" (Artress 1995, 11). In this view, the *less* you know about something the *more* faith you should put into it. One wonders if she uses the same strategy in selecting investments, making purchases, and trusting friends.

Labyrinth literature presents a dichotomy in which mazes represent the undesirable logical, rational side and labyrinths represent the intuitive, safe side. As Artress writes, "Mazes challenge the choice-making part of ourselves. . . . Our logic is challenged." The labyrinth, on the other hand, "does not engage our thinking minds" (Artress 1995, 52). Thus mazes, which force people to think logically and rationally, are rejected, and labyrinths, which are to be followed one way and without question or choice, are embraced.

A central belief is that the turns in the labyrinth symbolize the turns in our lives. The Unitarian Universalist Association of Boston, Massachusetts, states that "The winding path leading to the center serves as a mirror to reflect the movement of the Spirit in our lives." Yet hopefully our spirits are not destined to follow just one predetermined path, but are instead free to make choices. Much of the labyrinth literature hints at—but rarely acknowledges—this strongly deterministic aspect of labyrinths. On the one hand, labyrinths are supposed to symbolize and reflect our lives, but because labyrinths have only one path, the walker is given no options, forced to take only one path—the path everyone else is taking. In the labyrinth, unlike in life, there are not many doors, many possibilities, but only one.

Labyrinth claims extend beyond the spiritual to the supernatural. Many labyrinth promoters insist that there is something mystical about the shape or path of the labyrinth. This sort of claim gets into the realm of what New Agers call *sacred space*, along with ley lines, "earth magic," etc. Other paranormal areas intersect with labyrinths, including numerology (the number of circuits relates to its powers) and dowsing (often labyrinths will be sited according to dowsing principles).

## Walking the Ink Blot

Walkers' reactions to a labyrinth can be quite dramatic. Some weep, others have seen visions of God or dead loved ones. The labyrinth is, in many ways, a giant ink blot onto which its users project their hopes, fears, and dreams. You get out of it what you put into it. It can mean anything to anybody: those hoping to connect with a hidden, inner world might just do so; those hoping to hear the voice of God or dead loved ones may as well. But because an integral part of the labyrinth experience is suspending judgment, and because of the subjective nature of this experience, what's gained in a labyrinth must not be taken too seriously.

This also brings up a contradiction, particularly when the labyrinth is used to evaluate one's life to make decisions. Artress tells us that "Experiencing our feelings and inner thoughts without judgment is part of developing spiritual maturity" (98). On one hand, we are told not to be judgmental about ourselves or others while walking a labyrinth, yet we are also supposed to judge whether the messages we receive while walking are to be followed or not. There is clearly some danger in suspending judgment and reason while at the same

time using your imagination and looking for answers. What if a spouse leaves his or her faithful marriage because something in the labyrinth hinted that his or her partner was cheating? One woman walking a labyrinth received a spiritual message to sell everything she owned.

Labyrinths have also induced visions and hallucinations. One man saw Jesus while walking a labyrinth; another saw angels (Artress 1995; 94–95). Artress also mentions one woman who saw "beings of light-blue in hue, faceless but human in form." Some claim to hear God's voice as they walk; others hear angelic voices, or feel the presence of the dead. One woman, Marylin Arrigan of Maryland, was walking a labyrinth on the bank of St. Mary's River in 1999 when suddenly, she says, "I was in a very bright light. I had a vision of an Indian face with long straight hair, blowing in the wind. He had uplifted arms. He kept telling me to look up. I kept looking up. I was engulfed in light. He asked if I was committed to walking the labyrinth. I said yes. He said 'If you are, you must leave a footprint.' When I got to the center, I left two deep footprints. As I was walking out he said, 'Now you are walking out, you must go out in the world and leave a footprint'" (Quinn 1999).

Figure 5. Offerings left at the center of a seven-circuit shrubbery labyrinth at Lily Dale, New York.

No one else saw the figure. The area around that labyrinth is well known as ground that is sacred to American Indians (that's one reason the labyrinth was sited there), and it is not surprising that such a vision might appear to someone expecting a spiritual experience. It is also noteworthy that the Indian Arrigan saw closely matches a popular stereotype. The image of the noble Indian with windblown hair and uplifted arms could be taken from any number of classic images, from wooden carvings to television commercials. What would be remarkable would be to have a spiritual vision of a modern (yet equally full-blooded) Indian, working on telephone lines as a repairman or teaching at a university. Yet those images do not carry the romantic notions of Indian nobility and thus are unlikely to appear in visions.

Walkers' sometimes dramatic reactions are not surprising, since many who use labyrinths as spiritual tools are, by their presence in the labyrinth, seeking answers or "higher knowledge" or are emotionally troubled. For the most part, those who aren't expecting (or at least hoping for) some sort of mystical experience are less likely to walk the labyrinth. Walkers therefore become a self-selecting group, and it's not unlikely that those are exactly the people who will have strong emotional responses.

## Labyrinths as Therapy

Labyrinths have been claimed to possess healing powers. Several people say they were cured by walks in labyrinths, though to what degree that is attributable to the placebo effect or spiritual fervor is hard to determine. Artress admits that the evidence that labyrinths can heal physical diseases is shaky, though, "There are people that [suggest] the labyrinth heals Parkinson's and it does this and it does that."

Some labyrinth advocates, including educator Judy O'Brien (director of the children's program at Maryland's Sotterley Plantation), believe that the seven-circuit shape of the labyrinth may help to enhance children's learning capacities, including those with Attention Deficit Hyperactivity Disorder. O'Brien planned to design experiments in which elementary-school children walk labyrinths and have their reading and comprehension skills tested before and after. Though her tests were to have begun in 2000, so far O'Brien has not released her results, if any. O'Brien did not respond to repeated requests for an interview.

Another person investigating labyrinth therapy is Dr. Wayne London, working with Judith M. Joyce, former vice-president of the Labyrinth Society (and a dowser and Reiki practitioner). Their collaboration explores not only neurological disorders, but also "the healing effects of the labyrinth on the land" (Joyce 2001). How exactly the soil, rocks, and trees surrounding the labyrinth are "healed" is not explained.

Though churches were among the first institutions to embrace the labyrinth, some medical programs have also incorporated them. The first medical facility to install a labyrinth on its grounds was San Francisco's Pacific Medical Center. Mark Scott, CEO of Mid-Columbia Medical Center in Oregon, explained why his hospital installed a labyrinth at their facility. "People who are in pain, people who are suffering, people who have experienced emotional losses or losses of loved ones use the labyrinth. . . . Our cancer patients can center themselves before treatment by walking the labyrinth, or even use it as a tool to relax after they've had chemotherapy or after they've had radiation treatment" (Attkisson 2000). The Carbondale Labyrinth Project 2000, in southern Illinois, recommends their labyrinth for "persons with head injuries or learning disabilities

[who] might use it to facilitate sensory integration."

A few psychotherapists advocate the use of labyrinths in their therapy. According to some, the patient does not even need to actually walk the labyrinth to get benefits; he or she can simply trace a labyrinth pattern with a finger on a piece of wood. (For more on labyrinth therapy, see my article in *The Scientific Review of Alternative Medicine.*)

Despite roots in—and close ties to—various New Age hokum, the labyrinth itself is relatively harmless. Those seeking greater inner knowledge will likely be disappointed, but walking the path is an undeniably interesting experience. The suggestion that labyrinths have a long tradition of spirituality and are "ancient wisdom" rediscovered is a distinctly modern spin. Though common to many places and cultures, they were used as everything from attractive designs to good luck charms to areas of sport. They hardly have the deep, mystical, and spiritual traditions often claimed for them. While recognizing that the renewed interest in labyrinths is largely a passing fad, one author suggests that walkers take the realization in stride: "Rather than being embarrassed at how much humanity loves a fad, we might enjoy being part of one" (Schaper and Camp 2000, 20).

I encourage those interested in labyrinths to ignore the mystical bells and whistles and enjoy the experience for what it is. Go to a local labyrinth, give it a shot. Wait your turn, walk the path. Do it on your own, without expectations. If you see angelic visions or your arthritis clears up, good for you. If not, well, at least you're getting some exercise.

## References


Abbott, Robert. 2000. Amazing mazes column. *Mensa Bulletin,* June.

Alexander, Kristin. 1999. Labyrinths send believers down spiritual paths. *Tri-City Herald,* April 17.

Artress, Lauren. 1995. *Walking a Sacred Path.* New York: Riverhead Books.

Attkisson, Sharyl. 2000. Labyrinths. Healthweek (Public Broadcasting Company). Airdate April 14, Program No. 351. Available online at www.pbs.org/healthweek/featurep6_351.htm.

Explorations: Visions of the past, memories of the future. 2000. Catalogue, Fall.

Grimble, June. 1970. Maze, in *Man, Myth, and Magic.* Vol. 13, ed. by Richard Cavendish.

James, Peter. 1992. A visit to Troytown. In *The Unexplained: Mysteries of Mind, Space, and Time.* Vol. 14, ed. by Peter Brookesmith. H.S. Stuttman, Inc.: Westport, Connecticut.

Joyce, Judith. 2001. Spirit Matters Consulting Services. Available at www.spirit-matters.com/labresume.htm.

Labyrinth Resource Group brochure. 2000. Labyrinth Resource Group, Santa Fe, New Mexico.

Labyrinth Society brochure. 1999. The Labyrinth Society Inc., New Canaan, Connecticut.

McCutcheon, Lynn. 1998. Beethoven's babies: Much ado about nothing? *Skeptical Briefs* 8(4), December.

Middendorf, Bobbye. 2000. Labyrinths renew ancient spiritual connections. *Conscious Choice,* September. Available at www.consciouschoice.com/culture/labyrinths1309.html.

Quinn, Sally. 1999. The Light and the Labyrinth. *The Washington Post,* December 22, p. C1.

Radford, Benjamin. Labyrinths and alternative medicine. *The Scientific Review of Alternative Medicine.* In press.

Schaper, Donna, and Carole Ann Camp. 2000. *Labyrinths from the Outside In.* Woodstock, Vermont: Skylight Paths Publishing.

Vermont vibrations. 2001. Information from Web site: http://vermontvibrations.com/runicenergylabyrinth.htm.

Walker, Barbara G. 1993. Science: The feminists' scapegoat? SKEPTICAL INQUIRER 18(1): Fall. □



**You can make a lasting impact on the future of skepticism...**

when you provide for the *Skeptical Inquirer* in your will.

CSICOP and the *Skeptical Inquirer* changed the terms of discussion in fields ranging from pseudoscience and the paranormal to science and educational policy. You can take an enduring step to preserve their vitality when you provide for the *Skeptical Inquirer* in your will.

Your bequest to CSICOP, Inc., will help to provide for the future of skepticism as it helps to keep the *Skeptical Inquirer* financially secure. Depending on your tax situation, a charitable bequest to CSICOP may have little impact on the net size of your estate—or may even result in a greater amount being available to your beneficiaries.

We would be happy to work with you and your attorney in the development of a will or estate plan that meets your wishes. A variety of arrangements are possible, including: gifts of a fixed amount or a percentage of your estate; living trusts or gift annuities, which provide you with a lifetime income; or a contingent bequest that provides for the *Skeptical Inquirer* only if your primary beneficiaries do not survive you.

For more information, contact Barry Karr, Executive Director of CSICOP, at **716-636-1425**. All inquiries are held in the strictest confidence.

Skeptical Inquirer

CSICOP

# Are We on a Goldilocks Planet?

WILLIAM HARWOOD

*Perfect Planet, Clever Species: How Unique Are We?*
By William C. Burger, Prometheus Books, Amherst, New York, 2002. ISBN 1-59102-016-6. 345 pp. Hardcover, $29

"In 1978, Isaac Asimov [in *Extraterrestrial Civilizations*] generously estimated that there ought to be 530,000 technological civilizations in our galaxy, separated by an average of around 630 light-years" (273). Not so, says William Burger (Curator emeritus, Field Museum of National History, Chicago).

And in *Eight Little Piggies*, Stephen Jay Gould argued for the certainty of life on every Earth-like planet in the universe when he wrote, "The oldest rocks that could contain preserved organic remains are 3.5 to 3.6 billion years old . . . and . . . do feature fossils of single-celled creatures similar to modern bacteria." He saw that as evidence that "life, arising as soon as it could, was chemically destined to be, and not the chancy result of accumulated improbabilities." But it was only life at the lowest level that Gould deemed inevitable, since the evolution of multicellular animals did not occur for a further three billion years.

So life will almost certainly evolve on an Earthlike planet. And there, according to Burger, lies the problem. To qualify as "Earthlike," a planet must not only fall within a reasonable approximation of Earth's composition, mass, gravity, and spin. It must also be located in what astronomers have dubbed the "Goldilocks orbit." "To sustain complex lifeforms anywhere in the universe, it seems likely that a planet has to be at a distance from its parent star that provides a temperature range in which water is maintained in its liquid state. . . . Planet Earth sits comfortably within this Goldilocks zone" (32). Also, for a star to have a life-supporting planet, it must not be part of a binary system, it must be located inside the comparatively radiation-free area between the galaxy center and its halo and sufficiently far from galactic dust zones, and it must contain more heavy elements than eighty percent of otherwise sun-like mainstream stars.

A further uniqueness that makes Earth life-supporting, found nowhere else in the solar system and therefore conceivably rare in the galaxy, is its active crust: "If the Earth's surface were smooth, the overall depth of water covering our planet would be about 8,800 feet (2,700 m). Simply stated: without plate tectonics we'd all be fish" (50). And fish, as inhabitants of an environment with no dry land, could not develop the technology that makes intelligence a survival factor.

Add to all of that the stabilizing effect of an enormous moon, created by statistically improbable circumstances, that at the time of its formation increased Earth's spin rate, thereby blowing away a suffocating atmosphere such as still exists on Venus, as well as increasing Earth's magnetosphere to a level where it prevents the solar wind from stripping away the ozone layer. Later, by tidal effects, the presence of the moon reduced the spin rate to a level that reduces temperature variations to life-supporting limits, while simultaneously minimizing axial tilt. Those combined circumstances are sufficiently rare that Burger suggests there may be no other star system that meets all necessary specifications anywhere in this galaxy. He writes that "although the string of new data confirms that planets are common, at this stage it seems that

*William Harwood is the author of* The Disinformation Cycle *and* Dictionary of Contemporary Mythology.

planetary systems configured like our own are rare indeed" (29).

Many of the other factors Burger cites as necessary accidents in Earth's evolution as a life-bearing planet, such as constant bombardment from water-laden comets at precisely the right historical moment, cannot be rare in galactic terms. But for all such beneficial accidents to happen to the same planet was indeed a low-probability coincidence. He writes, "Because of biological activity based on the photosynthetic splitting of water, Earth's atmosphere became uniquely rich in oxygen. Thus, a combination of lucky breaks and unusual trajectories confronts us with the very real possibility that our blue and white planet may be unique, not only in its own solar system, but among the many thousands of other star systems as well. . . . We're not just talking Goldilocks's orbit here; we've got the Goldilocks *planet*. Our gravity, spin, crust, atmosphere, and water are all 'just right'" (55–56).

And precisely because conditions are "just right," certain mammals were able to evolve into apes, apes into the species *Homo*, and *Homo* into *Homo sapiens*. However, I was surprised to find Burger equating *Homo heidelbergensis* with an early form of *Homo sapiens*, directly descended from *Homo erectus*, which he identifies as a human ancestor. According to Klein and Edgar (*The Dawn of Human Culture*), the hominid line split into *Homo erectus* and *Homo heidelbergensis*, with the latter leading to *Homo sapiens* and the extinct coexisting species, *Homo neanderthalensis*, and the former to extinction. Their conclusion that all modern humans are descended from ancestors who lived exclusively in Africa until 50,000 years ago, far later than *H. erectus*, is supported by strong evidence. Burger's rebuttal: "Those who insist on the 'African Eve' scenario must postulate that the eastern Asian facial and cranial features arose twice: once in the distant past and a second time after the original features were swept away by modern *sapiens* genes. The chance of a double origin for such regionally unique features seems utterly unlikely."

While taking no position on the question of whether *H. erectus* was an ancestor of modern humans, I see a self-contradiction in Burger's hypothesis that inter-group warfare was an ongoing spur to humankind's continuing increase in brain size, and his simultaneous rejection of the hypothesis that *erectus* communities worldwide were systematically slaughtered by the invading *sapiens*. I see another self-contradiction in his acknowledgement that, "contemporary people around the world share the same general skeletal features characterizing gracile humans of tens of thousands of years ago," and his implication that "the eastern Asian facial and cranial features" were identifiable as such on Java man and Peking man. Is he claiming that, while skeletons cannot be identified as European, Asian, or African, skulls can? That is an allegation I have not heard before.

I do, however, find Burger's argument, that life on Earth is a consequence of so many fortuitous random accidents that it is not reasonable to postulate similar coincidences occurring on millions, or even thousands, of other planets in our galaxy, entirely convincing. But his extrapolation that, in a galaxy of a quarter-trillion stars, that which observably did happen once is unlikely to have happened twice, I do not buy. There may be far fewer stars with Sol's capacity to generate and energize life-supporting planets than was thought, and even fewer that lack companion stars or too-close giant planets. But even if there are only a few thousand solo G-type stars, it now seems certain that the majority of them have planets. An Earth-like planet at the right orbit cannot be as rare as Burger imagines. There may be no intelligent life sufficiently close to our solar system for SETI to find it even in a century of searching. But that the search should be abandoned (as Burger's book seems to imply) because there could not be a life-supporting environment anywhere but on Earth goes way beyond the evidence. Only dogmatists interpret low-probability events as indicative of Intelligent Design, and I suggest that uniqueness is an equally unnecessary conclusion.

But disagreeing with Burger's ultimate hypothesis does not blind me to the logic of his arguments and the skill with which he presents his case. This may be the most complete, accurate, and comprehensible account of humankind and his world, from the formation of the Sun to the evolution of *Homo sapiens*, ever compiled. It should be mandatory reading for every paleoanthropology student on this planet, and recommended reading for everybody else.

# What the #$*! Do *They* Know?

ERIC SCERRI

*What the #$*! Do We Know!?* Directed by Mark Vicente, Betsy Chasse, and William Arntz. Lord of the Wind Films, 2004.

People who espouse New Age philosophies are not generally known for their knowledge of modern science or their respect for critical thinking. Ironically enough, though, when it comes to quantum mechanics, everything seems to change, and they embrace it wholeheartedly. Given half a chance, many of them have something to say on the subject. But what New Agers really seem to like about quantum mechanics is all those alleged bizarre effects that they mistakenly believe can be appropriated to support their views

on the nature of reality and the cosmos.

It therefore comes as no surprise that the makers of a recent New Age movie making its way across the country decided to inject a massive dose of quantum mechanics into the film's storyline. *What the #$*! Do We Know!?* is packing them in. Many people who have seen the movie are already claiming that it has changed their lives. I tried to go to one of the first screenings in Los Angeles and was turned away because it was sold out. So what is this movie that uses quantum mechanics to change people's lives?

Filmed largely in Portland, the movie is a hodgepodge of all kinds of crackpot nonsense dressed up as modern science. The film oscillates between interviews with a number of so-called experts (especially in physics) and a rather flimsy storyline involving a deaf woman, played by Marlee Matlin, who is being encouraged to wake up and see life's full potential. A young basketball player who has taken it upon himself to enlighten her repeatedly asks her how far down the rabbit hole she wants to go.

An examination of the film's pedigree helps explain its peculiar approach. The three directors are students of Ramtha's School of Enlightenment in Yelm, Washington, which is run by New Age channeller J.Z. Knight. Knight claims to channel a 35,000-year-old warrior from ancient Lemuria named Ramtha (aka "The Enlightened One"), who dispenses wisdom through her. Ramtha's followers are said to include many people from the entertainment industry, such as actors Linda Evans, Don Johnson, Shirley MacLaine, and Richard Chamberlain. Knight herself appears in the film as one of the talking heads, and even holds forth on the subject of quantum mechanics.

*Eric Scerri is a lecturer in the Department of Chemistry at UCLA, where he also teaches philosophy of science. His Web page is www.chem.ucla.edu/dept/Faculty/scerri/. He is the editor of the journal* Foundations of Chemistry*; for more information see www.kluweronline.com/issn/1386-4238.*

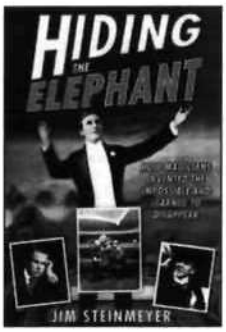
Knight, who's been channeling her prehistoric alter ego since the 1970s, is paid as much as $1,500 by those who attend retreats held at her school.

I want to focus a little on the science, because this is where I believe the film is at its most disingenuous. Each of the physicists interviewed trots out a sound bite or two about how quantum mechanics supposedly shows that objects can be in two places at once, that matter is mostly empty space, or that all parts of the universe are deeply interconnected. The existence of a reality that's independent from the human mind as usually understood by scientists, or indeed by any rational person, is repeatedly assaulted to the point of being mocked. In addition, we are assured that when Columbus arrived on the shores of the Americas, the natives could not actually see his ships because it was beyond their paradigm of what could exist.

The fact that the science is being distorted and sensationalized here is not at all surprising. What puzzles me the most is that by making quantum mechanics the heart of the movie, the filmmakers have fallen prey to a crude form of reductionism which is usually regarded as the enemy of New Age ways of thinking. By focusing so much on basic physics, the filmmakers do not seem to realize that they are shooting themselves in the foot. One moment they talk about all kinds of emergent phenomena, such as global consciousness, that go far beyond the reductionist worldview. The next moment they seem to suggest that the physics of fundamental particles explains human behavior! Even if we grant that quantum mechanics tells us that particles can be at two places at once—which, of course, it does not—how can one then assume that such bizarre effects work their way right up to macroscopic dimensions with no attenuation in order to determine human behavior? As many scientists and philosophers now realize, even if matter is fundamentally governed by the laws of quantum mechanics, this does not entitle us to suppose that chemical and biological phenomena will follow those same forms of behavior. This is to say nothing of even larger leaps such as the question of whether human behavior is dictated by the laws of physics.

Reductionism works in principle but not in practice, even though all the branches of science are interrelated. If you want to perform a certain chemical reaction, you ask a chemist. You do not ask a quantum physicist, although, in many instances, the quantum physicists may have some very helpful things to say on the matter. If you want to study biological organisms, you do experiments on the biological scale instead of renting time at the local particle accelerator. The breakdown of strict reductionism has become common knowledge among scientists, and yet Amit Goswami, John Hagelin, and Fred Alan Wolf, to mention just three from the film, have not caught up with this way of thinking about science. They prefer to remain within the old-fashioned paradigm that supposes that everything is indeed nothing but physics. This is not entirely surprising, given that each of them earns money writing books about popular physics laced with allusions to Eastern mysticism and the "really big questions in life." But now their knowledge of quantum mechanics is even allowing them to become movie stars and, better still, in a movie that is changing people's lives!

After dazzling the audience with dubious pronouncements from quantum physics, the storyline returns to Marlee Matlin's character, who is having an ever-increasing number of mind-expanding experiences, culminating in her realization that she no longer needs her prescription pills and that she can toss them into a lake. What a pity that the appreciation of modern science shown by New Agers is restricted to the more esoteric parts which are seen as supporting their worldviews. Meanwhile, something as beneficial (and mundane) as modern pharmacology is viewed with utter contempt to the point that people are effectively being told to throw away their prescription drugs and to cure themselves by waking up to the real meaning of life.




# Hiding the Elephant

EDWARD SUMMER

*Hiding the Elephant: How Magicians Invented the Impossible and Learned to Disappear.* By Jim Steinmeyer, magicians' portraits by William Stout. Carroll & Graf Publishers, New York, 2003. ISBN: 0-7867-1226-0. 362 pp. $14 paperback, $26 hardcover.

"The conjurer demonstrates that things are not always what they seem. Therein lies his philosophy."—*Colonel Stodare*

"It's not the trick. It's the magician." —*Harry Houdini*

Magicians, at least of the stage illusionist persuasion, are among the world's greatest keepers of secrets. Yet it's also a well-known secret that even if you know how their tricks are done, you don't know much at all.

Any curious ten-year-old with only a little perseverance and a library card can find out about the "gimmick" to any great magical illusion or sleight of hand and, in principle, go on to become the next Blackstone or David Copperfield.

But it's not really that easy to become a great magician or to baffle and awe the masses.

Houdini, after all, made an elephant disappear in full view of a huge audience, and, according to Jim Steinmeyer, was an abject failure. Why this is so forms the backbone of *Hiding the Elephant*, one of the most stupendous, utterly awesome, timely, provocative, totally indispensible, perceptive, and insightful books on the nature and mechanics of how and why we are fooled. Not only that, but one is confronted with the true genius of the real people who pulled this off in the past and continue to baffle us today.

There are, believe it or not, historical magic secrets that even the wisest and most savvy living magicians don't know. Even if they did, it's not enough, really, to know for a fact that "it's done with mirrors" or that "the card is up his sleeve." There is so much more to it than knowing the trick. *Hiding the Elephant* helps the reader understand that concept, among others.

Viewed as history as well as entertainment, stage illusions and card tricks are an intricate evolution of science, technology, theater, showmanship, psychology, mythology, audience expectation, and audience participation. No one element can account for the wonder experienced by the paying audience and knowledgeable magician alike.

Any of us who have tried to bring off pulling a red silk handkerchief out of Aunt Emma's nose are intimately familiar with everything that goes into what seems like a simple feat of, say, palming and misdirection. It involves—or should involve—snappy patter, bewitching facial expressions, graceful and balletic movements, and an inexplicably mysterious aura of mystification and the unknown, not to mention an obscene number of hours in practice. And all of this must be evoked and displayed effortlessly in a living room swarming with noisy relatives. The geniuses in magic are the ones who can pull it off not only in a kitchen full of dirty dishes, but also on the grandiose theatrical stages inhabited by the Houdinis and Thurstons and Lance Burtons and David Copperfields who astound us (especially those of us who know or think we know exactly what they're doing).

Jim Steinmeyer was faced with an interesting problem. In a decade where the wrath of every professional and amateur magician in the world is focused upon television's magic-spoiling "Masked Magician" (or the Outagamie Museum in Wisconsin that revealed in June 2004—after furious and vocal objections from the magic community—the secret of Houdini's Substitution Trunk), how can a professional magician, illusion designer, and historian explain just what magic is all about in a way that both reveals the "method" and preserves the mystery?

With an eye toward not being run out of town covered in tar and feathers by magical pros, Steinmeyer has spun a detective story. Born in 1958, Steinmeyer has crammed lifetimes of astonishment into a few short years: He has designed illusions for Harry Blackstone, Jr., Lance Burton, David Copperfield, Ricky Jay, Siegfried and Roy, Orson Welles, Disney theme parks, and more.

*Edward Summer recently baffled Natasha Demkina, the Russian Girl with (purported) X-Ray Eyes and has begun production on* The Magic of Magic, *a documentary. He has contributed in the past to* SKEPTICAL INQUIRER *and is not ashamed to say so.*

In this book, he's turned all of his practical investigations about the presentation of magical effects on the theatrical stage into a riveting trail of clues leading up to the Houdini's disappearance of Jenny the Elephant from the stage of New York's Hippodrome Theatre in 1918.

A parade of near-mythic but historically accurate portrayals of performing magicians drop hints and tidbits of what went into fooling millions of spectators for the decades leading out of the nineteenth and into the twentieth centuries. Steinmeyer tells us, as exactly as he can, just what they did, how the mechanics worked, and, perhaps most important, how they fooled us and why the very same tricks—folded and pressed and turned around to a slightly different angle—fool us today.

Agatha Christie's nail biters have nothing on *Hiding The Elephant* Where Christie invents conundrums and clues, Steinmeyer reports upon history. What, for example, was the genius behind Houdini's Water Torture Cell that provoked audiences to literal screaming hysteria night after night as Houdini apparently drowned in a tank full of water? How was that different from Thurston's floating a hypnotized woman up into the air with the full secret completely visible to audience members invited up on stage by the magician? How did it take decades and many brilliant minds to evolve both of these apparently "simple" effects?

In 1911, David Devant, a world-renowned, innovative magician who is a main character in this drama co-wrote *Our Magic* with Nevil Maskelyne, also a great magician of his day. In two sections ("The Art of Magic" and "The Theory of Magic") they attempted to "explain" stage magic to their pre-WWI audiences in a such a way as to make the audiences understand and appreciate the art which not only fooled them, but lured them to part with their hard-earned money in those pre-television days. The book, apparently, failed miserably in its effort to enlighten and inspire the public. Steinmeyer has, at last, pulled it off.

It's worth mentioning, in passing, that the woodcut-like, cameo illustrations that dot the book are by William Stout, himself a designer of movie and theme park miracles and also a leading expert on dinosaurs, especially those of Antarctica.

Those concerned with belief in the supernatural and other debilitating nonsense and also with the inevitable question of "how did they do that?" have the perfect book to recommend or give as a present. More than that, it's a model for how almost any arcane topic might be explained in way that's clear, historically accurate, and as compelling as any procedural mystery novel. The payoff here is not only the solution of the mystery of the 1918 vanishing elephant, but also a deep appreciation of the methods of the perpetrators and the tools for investigating other baffling conundrums—ranging from diseases to politics to friends who won't breathe without asking their astrologers for permission—that plague us all. □

# SCIENCE BEST SELLERS

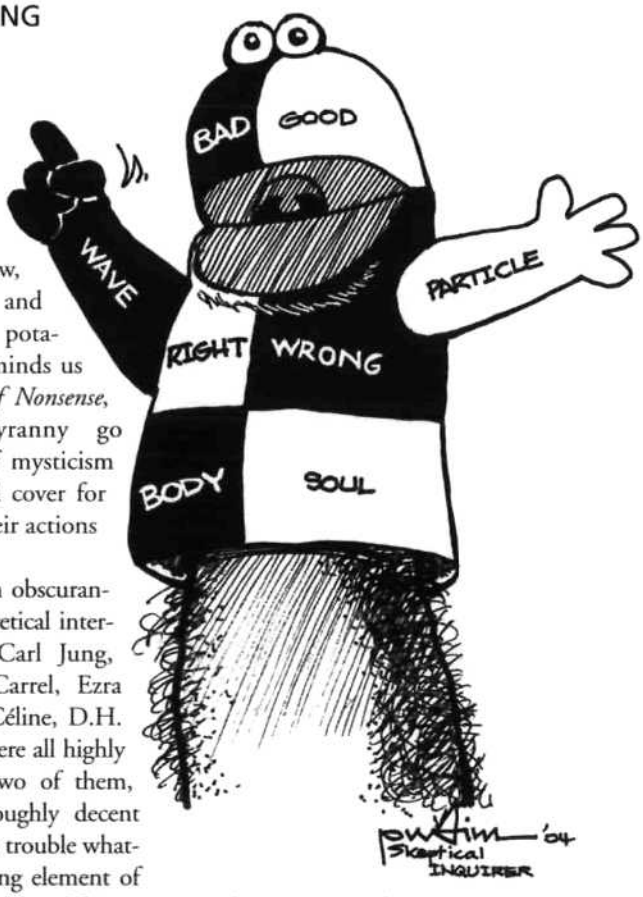
## Top Ten Best Sellers

1. ***Foundations and Fundamental Concepts of Mathematics***
   Howard Eves
2. ***The Golden Ratio: The Story of Phi, the World's Most Astonishing Number***
   Mario Livio
3. ***For Love of Insects***
   Thomas Eisner
4. ***The Fabric of the Cosmos: Space, Time, and the Texture of Reality***
   Brian Greene
5. ***Consciousness: An Introduction***
   Susan Blackmore
6. ***Why We Love: The Nature and Chemistry of Romantic Love***
   Helen Fisher
7. ***Journey through Genius: The Great Theorems of Mathematics***
   William Dunham
8. ***The Book Nobody Read: Chasing the Revolutions of Nicolaus Copernicus***
   Owen Gingerich
9. ***Concepts of Modern Mathematics***
   Ian Stewart
10. ***How to Grow Fresh Air: 50 Houseplants That Purify Your Home or Office***
    B.C. Wolverton

By arrangement with *Scientific American* (www.sciam.com), July 2004.

# Obscurantism, Tyranny, and the Fallacy of Either Black or White

RALPH ESTLING




It is no coincidence that the world's first great popularizer of totalitarianism was also the first great spokesman in the West of Philosophical Idealism, the doctrine which preaches that the everyday horrors with which men beset mankind are of no real consequence or significance, are indeed nonexistent, illusions, figments of our own perverted outlook created by our blinded, crippled senses. It was Plato who advocated the "Noble Lie," the lie the ruler, the Philosopher King, would broadcast to the ruled, always of course for the ruled's own good.

Rulers of church and state, the sempiternal Establishment of this world, have always seen things in this congenial light, the light that Plato ignited for them 2,400 years ago. No doubt they still would have if Plato had never lived, but with Plato as their Authority, the argument that pain and injustice are unreal, mere images and imaginings, gains repute, upstanding, righteousness, and, above all, philosophical *status.*

All dictatorships that have emerged in the West since 350 B.C. are a mere exegesis on Plato, the man who wrote that laughter is undignified, who chose Sparta rather than Athens; and on Philosophical Idealism, which is nothing more than an attempt to divide Existence itself into two unequal parts, external appearance and Inner Truth, The Good Essence and its bad shadow, the Divine Inexpressible and the sublunary meat and potatoes. As Bergen Evans reminds us in *The Natural History of Nonsense,* "Obscurantism and tyranny go together. . . . The mist of mysticism has always provided good cover for those who do not want their actions too closely looked into."

This danger inherent in obscurantism is not merely of theoretical interest. Martin Heidegger, Carl Jung, Konrad Lorenz, Alexis Carrel, Ezra Pound, Louis Ferdinand Céline, D.H. Lawrence, and T.S. Eliot were all highly intelligent and, at least two of them, humane, kind, and thoroughly decent men. Yet all experienced no trouble whatsoever in embracing a strong element of fascism to his heart, this after a lifetime spent in the contemplation and evocation of obscurantism. Once one has developed the habit of abjuring the rational in favor of the willfully obscure and mystical, the descent to the bottom of the night is an easy ride.

Obscurantism is ten parts humbug, and humbug is Tyranny's first name, the one it has chosen for itself and by which it is known to all its closer acquaintances. Was there one honest tyrant ever, was there *one,* who said, I have taken charge and mean to keep it for the good of myself. Not for the sake of the People, nor the State, nor this Faction nor that Party, nor God, nor the Holy Mother Church, nor the Prophet of God, nor Right, Freedom, Equality, Justice, and the Brotherhood of Man—but for myself, for my own good, because it pleases me to do so.

Only in the name of humbug shall Tyranny declare itself, at least in its more public utterances. Privately, in its own house, Tyranny may unbutton its vest, put on its slippers, and call itself honestly enough, though even of this we cannot be sure. But whenever it broadcasts its message it uses only its first

*Ralph Estling writes from Ilminster, Somerset, England.*

# FILL IN THE GAPS IN YOUR Skeptical Inquirer COLLECTION

• 15% discount on orders of $100 or more •

• $6.25 a copy, Vols. 1–18 ($5.00 Vols. 19–25). To order, use reply card insert •

**JULY/AUGUST 2004** (vol. 28, no. 4): Capital punishment and homicide, *Goertzel* / Defending science—within reason, *Haack* / Exposing Roger Patterson's 1967 Bigfoot film hoax, *Korff and Kocis* / Pranks, frauds, and hoaxes from around the world, *Carroll* / Seeing the world through rose-colored glasses, *Bowd and O'Sullivan* / Special report: PBS 'Secrets of the Dead' buries the truth about the Shroud of Turin, *Nickell* / Mythical Mexico, *Nickell*.

**MAY/JUNE 2004** (vol. 28, no. 3): Darkness, tunnels and light, *Woerlee* / Nurturing suspicion, *Mole* / The Cold War's classified Skyhook program, *Gildenberg* / The strange odyssey of Brenda Dunne, *Stokes* / Bridging the chasm between two cultures, *McLaren* / I am Freud's brain, *Garry and Loftus* / 'Visions' behind *The Passion*, *Nickell* / Belgium skeptics commit mass suicide, *Bonneux* / Psychic sleuth without a clue, *Nickell*.

**MARCH/APRIL 2004** (vol. 28, no. 2): Special Issue: Science and Religion 2004: Turmoil and Tensions. Why is religion natural? *Boyer* / Skeptical inquiry and religion, Kurtz / Exorcising all the ghosts, *Edis* / The roles of religion, spirituality, and genetics in paranormal beliefs, *Kennedy* / Development of beliefs in paranormal and supernatural phenomena, *Whittle* / Religious beliefs and their consequences, Layng / Secularization: Europe yes, United States no, *Zuckerman* / Not too 'bright,' *Mooney* / Point of honor: On science and religion, *Haack* / Benjamin Franklin's Enlightenment deism, *Isaacson* / In praise of Ray Hyman, *Alcock* / Hoaxes, myths, and manias (report on the Albuquerque conference), *Frazier* / The stigmata of Lilian Bernas, *Nickell*.

**JANUARY/FEBRUARY 2004** (vol. 28., no. 1): Anti-vaccination fever, *Hoyt* / Skepticism of caricatures, *Gaynor* / Fallacies and frustrations, *Mole* / Judging authority, *Lipps* / A geologist's adventures with Bimini beachrock and Atlantis true believers, *Shinn* / The real method of scientific discovery, *Guttman* / Oxygen is good—even when it's not there, *Hall* / Contemporary challenges to William James's white crow, *Spitz* / UFOs over Buffalo!, *Nickell*.

**NOVEMBER/DECEMBER 2003** (vol. 27, no. 6): Ann Druyan talks about science, religion, wonder, awe, and Carl Sagan, *Druyan* / Less about appearances: Art and science, *Nowlin* / King of the paranormal, *Mooney* / Sylvia Browne, *Farha* / Neither intelligent nor designed, *Martin* / Fellowship of the rings: UFO rings vs. fairy rings, *Nieves-Rivera* / The curse of Bodie, *Nickell*.

**SEPTEMBER/OCTOBER 2003** (vol. 27, no. 5): The ongoing problem with the National Center for Complementary and Alternative Medicine, *Atwood* / What does education *really* do?, *Losh, Tavani, Njoroge, Wilke, and McAuley* / Nostradamus's clever 'clairvoyance', *Yafeh and Heath* / They see dead people—Or do they?, *Underdown* / Energy, homeopathy, and hypnosis in Santa Fe, *Seavey* / Faking UFO photos for the twenty-first century, *Callen* / Haunted plantation, *Nickell*.

**JULY/AUGUST 2003** (vol. 27, no. 4): Special Report: Chasing Champ: Legend of the Lake Champlain monster, *Nickell* / The measure of a monster, *Radford* / The Rorschach inkblot test, fortune tellers, and cold reading, *Wood, Nezworski, Lilienfeld, and Garb* / Can minds leave bodies?, *Bensley* / Memory recovery techniques in psychotherapy, *Lynn, Loftus, Lilienfeld, and Lock*.

**MAY/JUNE 2003** (vol. 27, no. 3): The Luck Factor, *Wiseman* / More hazards: Hypnosis, airplanes, and strongly held beliefs, *Pankratz* / 'Premenstrual dysphoric disorder' and 'premenstrual syndrome' myths, *Flora and Sellers* / A patently false patent myth—still!, *Sass* / Wired to the kitchen sink, *Hall* / Mediumship claim responses, Schwartz and Hyman / Dowsing mysterious sites, *Nickell*.

**MARCH/APRIL 2003** (vol. 27, no. 2): The Blank Slate, *Pinker* / Omission neglect: The importance of missing information, *Kardes and Sanbonmatsu* / Acupuncture, magic, and make-believe, *Ulett* / Walt Whitman, *Sloan* / The James Ossuary, *Nickell*.

**JANUARY/FEBRUARY 2003** (vol. 27, no. 1): How *not* to test mediums, *Hyman* / Beliefs on trial, and the legality of reasonableness, *Fisher* / Placebos, nocebos, and chiropractic adjustments, *Homola* / Pliny the Elder: Credulist, skeptic, or both?, Parejko / Unfazed: Mark Twain debunks the mesmerizer, *Englebretsen* / Amityville Horror, *Nickell*

**NOVEMBER/DECEMBER 2002** (vol. 26, no. 6): Politicizing the Virgin Mary, *Eve* / Hypothesis testing and the nature of skeptical investigations, *Pigliucci* / Intelligent design: Dembski's presentation without arguments, *Perakh* / Hugo Gernsback, skeptical crusader, *Miller* / Alternative medicine and pseudoscience, *Mornstein* / Are skeptics cynical?, *Mole* / Psychic pets and pet psychics, *Nickell*.

**SEPTEMBER/OCTOBER 2002** (vol. 26, no. 5): Special Report: Circular Reasoning: The 'mystery' of crop circles and their 'orbs' of light, *Nickell*, Fourth World Skeptics Conference Report / A skeptical look at September 11th, *Chapman and Harris* / Sheldrake's Crystals, *van Genderen, Koene and Nienhuys* / Teaching skepticism via the CRITIC acronym, *Bartz* / Skepticism under the big sky, *Schwinden, Engbrecht, Mercer and Patterson* / Why was *The X-Files* so appealing?, *Goode* / Winchester mystery house, *Nickell*.

**JULY/AUGUST 2002** (vol. 26, no. 4): Special Report: Alternative medicine and the White House commission, *Gorski, London* / Special Section: Science and pseudoscience in Russia, *Kurtz, Efremov, Kruglyakov* / Who abused Jane Doe? Part 2, *Loftus and Guyer* / The high cost of skepticism, *Tavris* / Graham Hancock's shifting cataclysm, *Brass* / The Mad Gasser of Mattoon, *Ladendorf and Bartholomew* / Moscow mysteries, *Nickell*.

**MAY/JUNE 2002** (vol. 26, no. 3): Who abused Jane Doe? Part 1, *Loftus* and *Guyer* / Is the Mars Effect a social effect?, *Dean* / Gray Barker's book of bunk, *Sherwood* / The king of quacks: Albert Abrams, M.D., *Haines* / Benny Hinn: Healer or hypnotist?, *Nickell*.

**MARCH/APRIL 2002** (vol. 26, no. 2): Special Reports: Bioterrorism and alternative medicine, *Atwood* / 'Mothman' solved! *Nickell* / Bigfoot at fifty, *Radford* / Cripplefoot hobbled, *Daegling* / Pseudohistory in ancient coins, *Carrier* / Are science and religion compatible?, *Kurtz* / The emptiness of holism, *Ruscio* / Undercover among the spirits, *Nickell*.

**JANUARY/FEBRUARY 2002** (vol. 26, no. 1): Myths of murder and multiple regression, *Goertzel* / Education, scientific knowledge, and belief in the paranormal, *Goode* / A university's struggle with chiropractic, *DeRobertis* / Snaring the Fowler: Mark Twain debunks phrenology, *Lopez* / Three skeptics' debate tools examined, *Caso* / Mickey Mouse discovers the 'real' Atlantis, *Hardersen* / Atlantis behind the myth, *Christopher* / 10th European Skeptics Congress report, *Mahner* / Voodoo in New Orleans, *Nickell* / Some thoughts on induction, *Gardner*.

**NOVEMBER/DECEMBER 2001** (vol. 25, no. 6): A critique of Schwartz et al.'s after-death communication studies, *Wiseman* and *O'Keeffe* / Magical thinking in complementary and alternative medicine, *Stevens* / Educational malpractice, *Moore* / Philosophers and psychics: The Vandy episode, *Oldfield* / CSICOP 25th Anniversary section: The origins and evolution of CSICOP, *Nisbet* / Never a dull moment, *Karr* / John Edward: Hustling the bereaved, *Nickell* / Ernest Hemingway and Jane, *Gardner*.

**SEPTEMBER/OCTOBER 2001** (vol. 25, no. 5): Special Issue: Science and Religion 2001. Holy wars, *Tyson* / The dangerous quest for cooperation between science and religion, *Pandian* / Design yes, intelligent no, *Pigliucci* / A way of life for agnostics?, *Lovelock* / Science, religion, and the Galileo affair, *Moy* / The god of falling bodies, *Stenger* / The relationship between paranormal beliefs and religious beliefs, *Sparks* / *Science and religion in an impersonal universe*, *Young* / Arthur C. Clarke's 'Credo,' *Clarke* / A designer universe?, *Weinberg* / An evolutionary-genetic wager, *Avise* / Shroud of Turin scandals, *Nickell* / Multiverses and blackberries, *Gardner*.

**JULY/AUGUST 2001** (vol. 25, no. 4): Confronting veterinary medical nonsense, *Imrie* / Junk science and the law, *Dodes* / Chevreul's report on the mysterious oscillations of the hand-held pendulum, *Spitz and Marcuard* / CSICOP 25th Anniversary section: A quarter-century of skeptical inquiry, *Paul Kurtz* / Thoughts on science and skepticism in the twenty-first century, *Kendrick Frazier* / Proper criticism, *Ray Hyman* / The lighter side of skepticism, *Pudim* / A skeptical look at Karl Popper, *Gardner*.

**MAY/JUNE 2001** (vol. 25, no. 3): The shrinking filedrawer, *Stokes* / The Pokémon Panic of 1997, *Radford* / The Antinous Prophecies, *Pickover* / Common myths of children's behavior, *Fiorello* / Bertrand Russell and critical receptiveness, *Hare* / CSICOP 25th Anniversary section: From the editor's seat: 25 years of science and skepticism, *Kendrick Frazier* / Science vs. pseudoscience, nonscience, and nonsense, *James Alcock* / CSICOP timeline / Primal scream: A persistent New Age therapy, *Gardner*.

**MARCH/APRIL 2001** (vol. 25, no. 2): Darwin in mind, *Edis* / A bit confused, *Roche* / What can the paranormal teach us about consciousness?, *Blackmore* / Spontaneous human confabulation, *Nienhuys* / Italy's version of Harry Houdini, *Nisbet* / A psychological case of 'demon' and 'alien' visitation, *Reisner* / Distant healing and Elizabeth Targ, *Gardner*.

**JANUARY/FEBRUARY 2001** (vol. 25, no. 1): Special Section: Issues in Alternative Medicine: Medicine wars, *Seidman* / Herbal medicines and dietary supplements, *Allen* / Psychoactive herbal medications, *Spinella* / Chiropractic, *Homola* / Damaged goods? Science and child sexual abuse, *Hagen* / Special Report: Science indicators 2000 / Facilitated communication, *Gardner*.

**NOVEMBER/DECEMBER 2000** (vol. 24, no. 6): The face behind the Face on Mars, *Posner* / The new paranatural paradigm, *Kurtz* / Francis Bacon and the true ends of skepticism, *Friedberg* / Worlds in collision: Where reality meets the paranormal, *Radford* / Why bad beliefs don't die, *Lester* / Supernatural power and cultural evolution, *Layng* / The brutality of Dr. Bettelheim, *Gardner*.

**SEPTEMBER/OCTOBER 2000** (vol. 24, no. 5): Voodoo science and the belief gene, *Park* / Rogerian Nursing Theory, *Raskin* / Sun sign columns, *Dean* and *Mather* / The psychic staring effect, *Marks* and *Colwell* / Management of positive and negative responses in a spiritualist medium consultation, *Greasley* / The laws of nature: A skeptic's *guide, Pazameta* / *Special Report: On ear* cones and candles, *Kaushall and Kaushall* / Little Red Riding Hood, *Gardner*.

**JULY/AUGUST 2000** (vol. 24, no. 4): Thought Field Therapy: Can we really tap our problems away?, *Gaudiano and Herbert* / Absolute skepticism equals dogmatism, *Bunge* / Did a close encounter of the third kind occur on a Japanese beach in 1803?, *Tanaka* / Rethinking the dancing mania, *Bartholomew* / Has science education become an enemy of scientific rationality?, *Ede* / Krakatene: Explosive pseudoscience from the Czech Academy of science, *Slanina* / David Bohm and Krishnamurti, *Gardner*.

**MAY/JUNE 2000** (vol. 24, no. 3): Special Report: The new bogus MJ-12 documents, *Klass* / Mass delusions *and hysterias of the past millennium, Bartholomew and Goode* / Doomsday fears at RHIC, *Guiterrez* / Save our science: The struggle for rationality at a French university, *Broch* / Paraneuroscience?, *Kirkland* / Bohm's guided wave theory, *Gardner*.

**MARCH/APRIL 2000** (vol. 24, no. 2): Risky business: Vividness, availability, and the media paradox, *Ruscio* / Physics and the paranormal, *'t Hooft* / Efficacy of prayer, *Tessman and Tessman* / Can we tell if someone is staring at us?, *Baker* / Assessing the quality of medical Web sites, *Levi* / The demon-haunted sentence, *Byrne and Normand* / Mad messiahs, *Gardner*.

**For a complete listing of our back issues, call 800-634-1610, or see http://www.csicop.org/si/back-issues.html.**

name, humbug, just as any king or emperor, as if it had no parents, no ancestry, but had sprung, full-panoplied, out from the skull of God.

But it is not only obscurantism that forms a smokescreen behind which tyranny can hide. There is also the little matter of dividing all existence into two, and just two, totally opposed, totally opposite categories. People from whom we might expect better reasoning processes to be in evidence surprise us by their unexpected lack in perspicuity.

Sociologists and psychologists tell us about "dominant" or "leader" types, "dominated" or "follower" types, implicitly or very often explicitly inquiring of us which *we* would rather be, implying through it all that of course our choice, assuming nature allows us to have one—which is another kettle of red herring—should be to lead, to command, to dominate, to impose our wills and our concepts on others, for their own good of course, to win friends and influence people. This "either/or" insistence by supposedly intelligent and mentally skilled professionals is deeply worrying. It never seems to occur to these highly trained experts on human behavior that the only sensible answer to the query, Do you wish to be a leader or follower, a master or a slave, is: What sane person would want to be *either*?

Dividing everything into two is all right in the monkey house, the sandbox, and the digital computer, but one can only wish this binary reasoning, this plus-or-minus-and-no-nonsense-please approach to things applied in social situations, would end somewhere between our twelfth and sixteenth birthdays.

The ability to see the world, its meaning, and its humanity, in strict dualistic terms, as two, and only two, distinct and mutually exclusive entities, forms the backdrop and backbone of almost all religion, philosophy, politics, economics, law, sociology, psychology—indeed virtually every human enterprise that has led to disintegration or petrification of society or the individual. Plato or Aristotle, St. Augustine or Descartes, Calvin or Torquemada, Freud or Jung, Nietzsche or Baudelaire, Eysenck or Skinner, Stalin or Hitler, no matter in what specifics they may have differed one from the other, agree that everything is to be divided into Two, which, whatever they choose to call them, can be reduced to a common denominator: the saved and the unsaved, those on God's side and those on Satan's, the abstractions of the pure reasoner and the concretisms of the pure observer, the totally sensory and the completely analytic, the blessed and the damned, the holy and the infidel, the material and the spiritual, the mind and the heart, wave and particle, holism and reductionism, nature and nurture, the Hellenic and the Hebraic, the superman and the herd, the Romanticist and the Classicist, the representational and the symbolic, the exploited and the exploiter, the gifted and the dull-witted, inductive analysis and hypothetico-deductivism, the justly rich and the deservedly poor, the black and white, Us and Them. Pluralism remains a luxury that only a few minds can afford, or even window-shop for.

**The ability to see the world, its meaning and its humanity, in strict dualistic terms, as two, and only two, distinct and mutually exclusive entities, forms the backdrop and backbone of virtually every human enterprise that has led to disintegration or petrification of society or the individual.**

Susan Stebbing in her *Thinking to Some Purpose* has named this Manichaean style of dichotomizing *the fallacy of either black or white.* It is the logical absurdity that assumes we cannot be logical unless we deal with precisely definable characteristics, thus ignoring the fact that a *clear* distinction is not necessarily a *sharp* distinction. The fallacy states, in effect, that in order to be nice and logical we are forced, by the dictates of logic themselves, to draw a definite line somewhere in an infinite series—ranging from absolute black, through all possible gradations of gray, down to absolute white—at the precise point where black changes to white, and that to refuse to do so labels us as illogical and unclear thinkers, or worse, cowards and equivocators, who insist on not drawing distinctions between Black and White.

This line of reasoning confuses *thinking clearly* with *drawing sharp distinctions.* It should not be necessary to point out that the one does not perforce imply the other, that thinking can be very clear indeed even when sharp divisions cannot be made and, often enough, it is only clear thinking that tells us so in these cases. To divide an infinite, or at least very long and complex, series into two distinct parts which are then to be placed in total opposition to each other is not a sign of good logic. No one over the age of sixteen has the right to be that naïve.

The purposefully obscure, the deliberately oversimplified either-or act of illogic, each has its apotheosis in tyranny, either mental or physical, always spiritual. And it is the only form of tyranny in which we are likely to forge our own chains, to wrap ourselves in them, and then throw away the key, proclaiming all the while our total and ineluctable devotion to freedom. □

# Tablets and Tabloids: Skeptical Reading

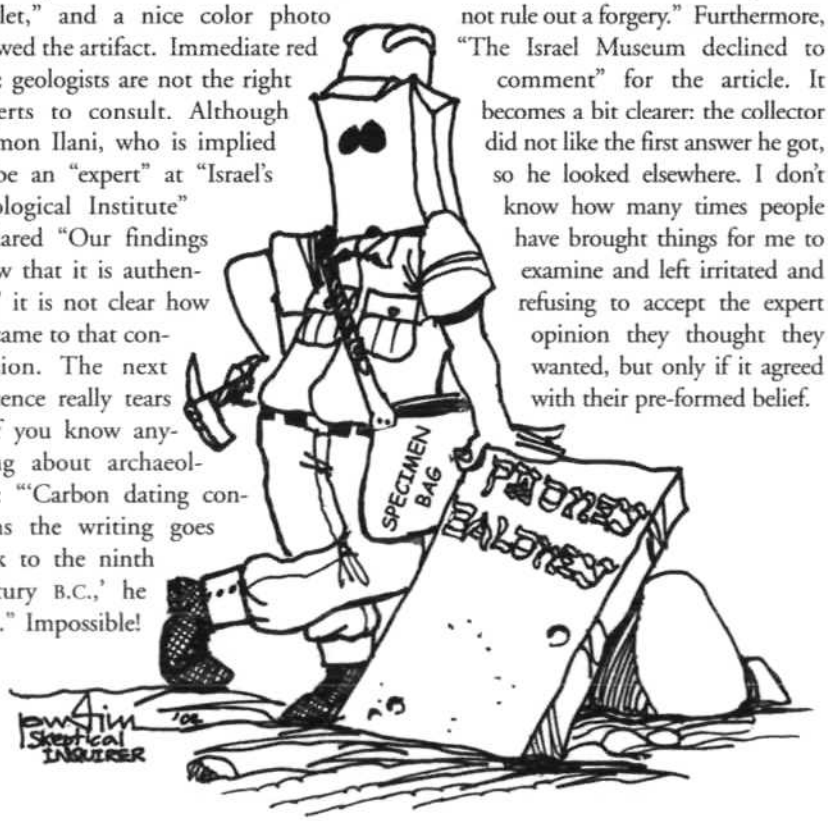
JOHN C. WHITTAKER

"I read it in the paper" no longer cuts it as a statement of authority. The *National Enquirer* and similar rags do not have to be wrapped around herring to smell funny. Even reputable papers reporting real news are owned by corporations with economic motives, led by editors with political biases, and staffed by reporters who may be no more educated or savvy than the ordinary reader, and who get their stories from the liars, politicians, and ignoramuses who make up a large part of humanity. A degree of healthy skepticism should be applied to all media.

Reports of scientific discoveries are sometimes difficult to evaluate without some knowledge of the field, but often all you really need is a bit of background, a smattering of common sense, and a questioning attitude. Sometimes a bald and unsensational article turns out to be as riddled with problems as last month's forgotten leftover is veined with mold when you open the Tupperware. Here's a gem that appeared in the *Des Moines Register* (January 14, 2003) just in time for my archaeology class. The reporter appears to have reported fairly, but without consulting dissenting authorities or providing much explanation. The authority of "black and white" in a serious news source probably gives a spurious find more public recognition than it deserves, since when I encouraged students to be critical, even beginners could find the wormholes.

In a fairly good regional newspaper, under the byline of Laurie Copans of the Associated Press, the headline read: "Geologists Examine Inscribed Stone Tablet," and a nice color photo showed the artifact. Immediate red flag: geologists are not the right experts to consult. Although Shimon Ilani, who is implied to be an "expert" at "Israel's Geological Institute" declared "Our findings show that it is authentic," it is not clear how he came to that conclusion. The next sentence really tears it if you know anything about archaeology: "'Carbon dating confirms the writing goes back to the ninth century B.C.,' he said." Impossible! Carbon dating only works on organic objects, not rocks. In any case, the age of the stone is irrelevant to the age of the inscription, and geologists are unlikely to know much about archaeology or epigraphy. However, they make convenient experts to quote, or just as likely, to misquote.

Why would you ask geologists? Well, it seems that "the collector" asked the Israel Museum first, and "was told they could not rule out a forgery." Furthermore, "The Israel Museum declined to comment" for the article. It becomes a bit clearer: the collector did not like the first answer he got, so he looked elsewhere. I don't know how many times people have brought things for me to examine and left irritated and refusing to accept the expert opinion they thought they wanted, but only if it agreed with their pre-formed belief.




*John Whittaker is in the Department of Anthropology, Grinnell College, Grinnell, Iowa 50112. E-mail: whittake@Grinnell.edu.*

Mention of "the collector," who is not named, leads us to another problem. As the article puts it, "The origin of the stone tablet is unclear, making it difficult to establish authenticity." It may have been "uncovered in recent years . . . on the Haram as-Sharif . . . or Temple Mount," but that information is from an unidentified source in an Israeli paper, and probably really originated with the collector himself, who "has declined to come forward." All of this means to the archaeologist that there is no context. We don't know if the circumstances of the find support the authenticity of the artifact, or add information that would help us understand the purpose of the inscription. If there had been associated artifacts, it might have been possible to carbon date them, and thus date the context of the inscription. The howler about dating by the geologist might then have been a simple misquote, but here, there is nothing else to date.

In fact, it soon becomes clear that the "unclear origins" of the tablet are perhaps not accidental. First we have a collector too shady to reveal himself, who would certainly like to have acquired a really important artifact, which will bring him fame, or fortune, or both. Worse, it is *claimed* to have come from one of the most sensitive holy sites in Jerusalem, revered by both Jews and Muslims. And finally we get to the inscription itself, in which the king is instructing priests to "take holy money . . . to buy quarry stones and timber and copper and labor to carry out the duty with faith." This parallels a Bible passage in which a Jewish temple is being repaired. Most important, it appears to provide evidence that a Jewish temple stood in this location some 2,800 years ago, and "could strengthen Jewish claims to a disputed holy site . . . that is now home to two mosques." Now the intelligent reader should be really worried. There are evidently strong political motivations for fraud. In fact, the silence of the archaeologists at the Museum may mean that they were told to shut up.

Conclusion: None of this is conclusive one way or the other, and further judgments must be based on the evidence of the tablet itself and its inscription. Meanwhile, based on what the reporter published, we should be dubious. In fact, if I were a betting man, I would unhesitatingly give you 100 to 1 odds that the "find" is a fraud, and even guess at the reason. I would say there is about a 50 percent chance that the inscription is motivated by an Israeli right-wing agenda of dispossessing the non-Jewish part of the population, with a 49 percent chance that it is just a crook trying to make a few bucks, and playing on the political climate of the moment. To be fair, we'll allow a 1 percent chance that the thing is genuine, but maybe Elvis is still alive and living in Zanzibar too. And as one of my students said, "All that and we didn't have to know a word of ancient Hebrew!"

Postscript: As I wrote this, the limestone ossuary with the inscription "James, son of Joseph, brother of Jesus" was still being disputed. The ossuary is apparently old, and the inscription would obviously be of great interest if it could be linked to the Biblical Jesus, but again, it was an artifact of dubious origins, presented by a collector who buys and sells looted artifacts, supported by scholars and politicians with political, religious, and career axes to grind. . . .

By the time SKEPTICAL INQUIRER was preparing my piece for publication in February 2004, the ossuary inscription had been conclusively dismissed as a fraudulent addition to an old ossuary. Moreover, the inscribed tablet and the ossuary had both been revealed as productions of the same "collector" (see Nickell 2003a, 2003b for initial suspicions and later report, and Silberman and Goren 2003 for the detailed story). Oded Golan is under investigation by Israeli authorities for a number of frauds and antiquities violations. Too bad I didn't have any money on my bet!

## References


Nickell, Joe. 2003a Bone (box) of contention: The James Ossuary. SKEPTICAL INQUIRER 27(2):19–22.

———. 2003b James Ossuary verdict: Ossuary genuine, inscription fake. SKEPTICAL INQUIRER 27(5):5.

Silberman, Neil Asher, and Yuval Goren 2003 Faking biblical history. *Archaeology* 56(5): 20–29. □


## SHIPS OF THE DEAD

*Continued from page 14*


Don't Miss the Boat. N.d. Flyer of the USS *Hornet* Museum (obtained October 25, 2001).

Guiley, Rosemary Ellen. 2000. *The Encyclopedia of Ghosts and Spirits.* New York: Checkmark Books.

Hauck, William Dennis. 1996. *Haunted Places: The National Directory.* New York: Penguin Books, 290–291.

*Haunted History: New York.* 2000. Documentary aired on History Channel, September 22.

The Haunting of the USS *Hornet.* 2004. Available at www.dr-assoc.com/hornet-9-30-02.htm; accessed April 20.

Hull, Dana. 2000. USS *Hornet*—Staff and visitors report seeing and hearing strange things. *San Jose Mercury News,* August 11.

Knight, Heather. 2001. Backyard haunts. *San Francisco Chronicle* (Contra Costa & Tri-Valley ed.), October 26.

Lafee, Scott. 2001. Haunting pro goes on ghostly iron ship, October 31. Available at www.signonsandiego.com/news/uniontrib/wed/currents/news_1c31paranormal.html.

Lamb, John J. 1999. *San Diego Specters: Ghosts, Poltergeists, and Phantasmic Tales.* San Diego, Calif.: Sunbelt Publications, 153–158.

Merideth, Lee William. 2001. *Gray Ghost.* Sunnyvale, Calif.: Historical Indexes publishing Co.

Monster Bash aboard the Gray Ghost. [2001.] Flyer of USS *Hornet* Museum.

Nickell, Joe. 2001a. *Real-Life X-Files: Investigating the Paranormal.* Lexington, Ky.: University Press of Kentucky.

———. 2001b. Interviews with staff of *USS Hornet,* October 25.

Reports of Zombie-Like Figures. . . . 2004. Available at www.100megsfree.

Ship of Spirits. . . . 2001. Media release, March 28. Available at www.uss-hornet.org/news_events/press_releases/press_releases_2001.html; accessed April 20, 2004.

The Sullivans. N.d. Display sign aboard USS *The Sullivans,* Buffalo and Erie County Naval & Military Park, Buffalo, N.Y. Visited June 24, 2003.

USS *The Sullivans* History. N.d. In informational brochure, *Welcome to the Buffalo and Erie County Naval & Military Park,* Buffalo, N.Y.; obtained June 24, 2003.

Winer, Richard. 2000. *Ghost Ships: True Stories of Nautical Nightmares, Hauntings, and Disasters.* New York: Berkley Books.

Wilson, Sheryl C., and Theodore X. Barber. 1983. The fantasy-prone personality. In *Imagery: Current Theory, Research, and Application,* edited by Anees A. Sheikh. New York: John Wiley and Sons.

Wlodarski, Robert, et al. 1995. *A Guide to the Haunted Queen Mary.* Calabasas, Calif.: G-Host. □

## Bridging the Chasm

*Karla McLaren's article "Bridging the Chasm between Two Cultures" (May/June 2004) stimulated more letters, most of them positive and sympathetic, than any other article this year. Here is a representative sampling.— EDITOR*

My thanks to Karla McLaren for her courageous article, "Bridging the Chasm between Two Cultures." It takes considerable courage to discard one's canonical structure and adopt a new one, particularly when the new one is that of the "enemy."

She raises a point that has disturbed me since SI's inception, namely, the contempt and disdain with which we skeptics and nonbelievers refer to New Agers and religionists. What is it that we skeptics are trying to do, bask in our perceived superiority or actually communicate with the other side? If it is the latter, we won't do it by being contemptuous of them.

Are we trying to change minds? If so, perhaps we should ask ourselves why we want to do that. Would it be for their benefit or our satisfaction?

My suggestion is that we try to communicate information along with a way of thinking that incorporates healthy skepticism and to skip the contempt and anger.

It is my experience, however, with the New Agers that there is more involved than a cultural difference and lack of communication. Most of my interactions with them have been similar to those with fundamentalist Christians or political partisans: Real discussion is not possible because they have the "truth." Ms. McLaren has my admiration for trying to break through these barriers. Let us assist her in this noble effort.

*John J. Brooks*
Weed, California

This is a most extraordinary article! Karla, thank you for writing it.

You have made many very important points, but the most important is that when we are viewed from the perspectives of others, we may not recognize ourselves. I think that we are remiss in communicating our values, and I also think that we are remiss in our arrogance of insisting that facts are the important thing, not communication. I wish you well in your studies, and hope to read more from you about the journey.

Gil Reeser
gilar@comcast.net

A great piece of work by Karla McLaren and a proper dressing down of us skeptics. I do not necessarily agree with her that the name calling was just out of concern for these people who needed our enlightenment. I think it is mostly self-righteous arrogance.

One of the popes said it best: "Give me your children and by the age of five they will be mine." When children are raised in a vacuum by people they trust and love, our heart goes out to them, in part because we can do or say little that will change that.

When they become adults, we berate them for not being able to think for themselves. I believe it takes a lot of strength to believe in something that isn't there.

I agree with Ms. McLaren that we must step up to a change of attitude and respond to the cultural differences as mature, caring adults and teach in the same manner. We would never call our children stupid because they have an idea that may not be fully thought out.

It is a pretty rough world out there and we skeptics who respond without compassion do not see the big picture. How many more wars will it take to start understanding people who may not have our information or share our beliefs?

Terry Ducheane
Bremerton, Washington

I found McLaren's article very interesting. One can study the pathologies of magical (or paranormal, if you prefer) thinking all day long, but a sympathetic insider's report is worth a journal full of them. When she says, "In my culture, you can't openly attack anyone or their character, and you can't use truly focused skepticism," she zeroes in perceptively on an important reason for the persistence of magical thinking and its seeming immunity to refutation.

As McLaren instinctively imposes patterns of New Age thinking on her explanation, see how there is a complete, tacit conflation of the concept of "me" with that of "my ideas." The New Age thrives on an intellectually dishonest subjective view of the world, as if cold, unyielding reality were at the mercy of our little human wills to spice it up; and to compound this, thanks to McLaren's insights, I see that same subjectivity insulating New Age beliefs from effective refutation. Attack my ideas, no matter how palpably unsound they may be, and you attack me—and that's when, as a polite person, I turn away from you to avoid a fight.

Penn Jillette once argued that you have to be fifty decibels louder than the fools; but maybe McLaren is right that a Trojan horse is a better approach. (McLaren's own case, however, does show that standard skeptical debunking techniques can be effective.)

Gregory S. Bucher
Department of Classical and Near Eastern Studies
Creighton University
Omaha, Nebraska

Karla McLaren's article was overdue and is an important start in winning over the world at large to skeptical ways of thinking. To Ms. McLaren, what can we do to help?

Bill Weitze
bweitze@california.com

Three cheers for Karla McLaren! Her brave venture from New Ager to compassionate skeptic is much appreciated.

But let us remember who the real nasties are. In my opinion, except for charlatan leaders, most New Agers are more or less harmless kooks. And nobody is about to go to war for crystal power, or feng hooey! But when the Christian soldiers get to marching, things like the Vietnam war tend to happen.

Tony Finch
Madison, Wisconsin

Former New Age leader Karla McLaren sees the divide between believers and skeptics as a conflict of cultures. Both sides, she says, are caring and well-intentioned, but believers reject any need to be critical or informed. If

only skeptics were less demeaning, she says, and less fond of words like *scam* and *fraud*, the divide might be bridged. Even though her own culturally sensitive attempts to make New Agers more skeptical have failed ("some avid readers still don't know what I was saying"), it might still bridge the divide. I wish I could believe her.

For twenty years, the skeptics group in Western Australia has adopted precisely the nonthreatening approach that she advocates. It provides information but does not evangelize. New Agers who have interacted with us, either as speakers or as contenders for the national $100,000 (Australian) prize for proof of paranormal ability, find us to be pleasant and respectful. But unless they are naturally curious, which is rarely the case, the divide remains spectacularly unbridged. The case with print is similar—neutral but informed articles on dowsing are simultaneously praised by geologists and furiously attacked by dowsers.

No doubt our nonthreatening approach might persuade the occasional teetering heretic. No doubt a fun-filled approach (as per Paul Giles in the same issue) might persuade a few more. But after twenty years of trying, it seems that the best we can hope for is that the next generation, better equipped with information than their parents, will achieve a more skeptical salvation. Of course, nobody who derives comfort from a given belief is going to seek evidence against it. The trick, it seems, is to reach them before the belief gets a stranglehold and hope that information will prevail over ignorance.

Geoffrey Dean
Western Australian Skeptics
Perth, Western Australia

I commend Ms. McLaren for her courage and bravery to completely change the course of her life following critical thinking and skepticism. Similar critical thinking and skepticism over the past ten years significantly changed my belief in religion, creationism, and evolution. It has and will continue to affect my life and the lives of my family very significantly. As a nonbeliever in religion, I am an outcast. I salute Ms. McLaren and wish her well in her new journey which will not be easy but will accurately represent the facts. I enjoy reading your publication and look forward to further issues.

Thank you.

Dennis Chamberlain
North Salt Lake, Utah

I admire Ms. McLaren's ability to recognize that she was falling short of her goals as a caring human being, trusted by others. I suspect that her obvious concern for others benefited many who came into contact with her or with her ideas, scientifically flawed as they were. I would encourage her to read *Healing and the Mind* by Bill Moyers, which discusses scientific research on the role emotions play on human physiology.

Her distinction between well-meaning individuals who are trying to be helpful and those who are purposefully taking advantage of people in vulnerable positions who will grasp at any hope is a good point. Perhaps the skeptical dissector of bad science could learn to criticize the message while accepting the idea that the intent of the messenger may be as sincere as it is misinformed. Many of us try to improve the lives of others by whatever imperfect means we have at our disposal, and most of us can think of someone who made a profound difference in our lives without the use of what we commonly refer to as science.

Margo Markowski
margom@xmission.com

I couldn't agree more with Ms. McLaren's point. I can even clarify it.

When people communicate, two channels are involved: data and emotion. We skeptical types tend to focus on the data and downplay the emotion. I believe that New Age people do the opposite. Without a solid emotional connection, data and logic are unconvincing to them. With a solid emotional connection, data and logic are unnecessary. So when Uri Geller says, "I'm a nice guy, and I can do this interesting thing," they respond positively to his pleasant and upbeat manner. . . . When James Randi says, "He cheats," they read the emotional channel and conclude, "Randi's got an anger-management problem." Randi's "facts" can now safely be discarded as coming from an obviously flawed source, leaving Geller with a clear win.

Unfortunately, understanding where we go wrong does not tell us how to do it right. To reach New Age people, the argument must have the correct emotional content. Paul Giles in the same issue suggests humor, a good idea but not enough. Consider "If the glove doesn't fit you must acquit" from the O.J. trial. This statement is factually incorrect. But try to come up with a counter that would be effective with a New Age type. To get through to them we must reach them. But how? Not with "just the facts, ma'am." I'm stumped for a solution too.

Patrick J. Russell
Seattle, Washington

I've just finished reading the thought provoking article by Karla McLaren. She describes a (sub)culture where intellectual rigor, critical thought, and criticism of anyone or any idea are disapproved. If I were a charlatan, I know where I would want to set up shop. I'll bet I wouldn't be the first. I wonder if these people understand the meaning of the expression "asking for it."

Norman P. Carlson
Jamestown, New York

Karla McLaren's comments on what New Agers dislike about skeptics describes better than I ever could my sole criticism of the SKEPTICAL INQUIRER. Not the content but the overuse of "insulting text and demeaning attitudes."

The "Skyhook Program" article by B.D. Gildenberg was written well and with a tone I believe McLaren would say was better suited to actual communication.

Excellent issue.

Phil Noel
jlnpln@comcast.net

*Karla McLaren replies:*

*I've been very heartened by the responses I've received from thoughtful skeptics—and yes, I am moving forward. In the months that have passed since the writing of the article, I've completed the first semester of my sociology degree, and I've learned to speak more skillfully with members of my own culture. (Hint: protecting the relationship and speaking gently about the human costs of the New Age works beautifully. Talking down to or making a laughingstock of believers, or acting like a frustrated know-it-all guarantees failure.) I've also started cowriting a book on the chasm between the two cultures with SI managing editor Benjamin Radford (working title:* Truce between Truth Seekers*). SI readers, your letters, your support, and your empathy are very important. You've made me feel less isolated, and you've made a huge difference. I send you non-specific and non-binding blessings.*

## Darkness, Tunnels, and Light of the NDE

I enjoyed G.M. Woerlee's article about near-death experiences ("Darkness, Tunnels, and Light," May/June 2004) and wanted to report my own, such as it was.

About four years ago, I fell off my bicycle and suffered a concussion. I remember crossing a street, and the next thing I was aware of was seeing a bright light. I had the sensation

of being pulled backwards, away from the light, down a dark tunnel.

Sounds like I'm ready to write a New Age bestseller, doesn't it? Unfortunately, I know exactly what happened. I had been strapped to a gurney and was being pushed backwards into an ambulance. The tunnel was the relatively dark inside of the ambulance and the bright light was the daylight outside. Having lost my glasses no doubt improved the effect, since my bad vision made everything a hazy blur.

If I had blacked out again after that moment (I was in an out for a few minutes) and woken up in the hospital, I might have really thought I'd had a near-death experience. Alas, I met no angels, just an ambulance attendant, but he looked pretty good to me.

Rob Lopresti
Bellingham, Washington

I've taken great interest in near-death experiences (NDEs) ever since I had one at the age of ten. After being hit by a car, I vividly remember floating in the air above my body on the ground, being drawn upward through a tunnel of light and meeting God, who told me it was not yet my time to die, so he was sending me back.

What did not occur to me until years later was that I had, in fact, been nowhere near death. The car struck me a glancing blow that knocked me down and fractured my leg. I was otherwise uninjured. As an adult, I've read much on the phenomenon and believe NDE is simply something the brain "does" when under duress, probably via endorphin release or other biochemical mechanisms. I find the oxygen deprivation hypothesis unconvincing in my case: I had plenty of air, and the entire NDE took less time than the few moments between breaths. Perhaps lack of oxygen is just one of many stimuli that can stress a brain sufficiently to cause the experience.

I think it behooves researchers and others to respect how powerful an NDE can be for those who have one. I believed I had had a real, lucid, profoundly moving interaction with the supernatural. Even now, more than thirty years later, it leaves me amazed at what the human brain is capable of. I also wonder how many "false-NDE" people there are like *me, and what a study of our experiences* might conclude.

Brian Fies
Fulton, California

I'm surprised that Dr. Woerlee's article didn't mention a collection of phenomena that pilots have known about since the early days of aviation: greying out, tunnel vision, blacking out, and, ultimately, passing out. (Although many people use "blacking out" to mean a loss of consciousness, in aviation, the term is used to describe an effect that is strictly visual: The pilot is conscious and alert but sees a totally black visual field because receptors in the retina have shut down. The aviation term for passing out is "g-induced loss of consciousness.") These symptoms, which are apparently quite similar to those described by Dr. Woerlee, arise as load factor ("g-load") increases and normal blood pressure can no longer force blood to the retinas and the brain.

Karl Sutterfield
Eastlake, Colorado

I agree with the article about the near-death experience, but would like to add that I think it is an evolved mechanism to wake people up when they have stopped breathing during sleep. I have experienced NDEs twice. Both times, I woke up but was unable to move. I struggled and woke up gasping for breath. Apparently I had stopped breathing due to sleep apnea. The NDE may have saved my life. Now, I avoid sleeping on my back, which causes the apnea.

P.C. Donohue
Wilmington, Delaware

## Anti-Science Postmodernism

Phil Mole's essay ("Nurturing Suspicion," May/June 2004) is perhaps the best discussion of the antiscience Cultural Revolution that I've read to date. I would add only one thing to his analysis of the challenges of maintaining a balance between "science and society"—laziness. Science is hard work, opining is not. (Consider the comfort in which I repose while writing this commentary.)

Making assertions is easier than proving them, even in strictly logical disciplines like mathematics. In business, politics, and law—unfortunately—forceful rhetoric often prevails even when it's wrong. But in the natural world, we need the collection of tools we call science: intuition, logic, experimentation, statistics. Rhetoric is just so much wind. Intuition brings us new ideas to test. Logic is necessary, but it's seldom sufficient: When many logical explanations are compatible with a single phenomenon, only experimentation can decide among them. But few experiments yield black-and-white results, so we resort to statistics.

I think Mole would agree—science education should focus on helping students understand how difficult it is to produce "good science," even if they never try to do it themselves.

Karl Sutterfield
Eastlake, Colorado

I agree with Phil Mole's observation that most science-studies offerings seem to have an agenda in trying to undercut the epistemic status of science. Additionally, those who take such classes usually don't have the philosophy, methodology, or the history-of-science background needed to counter the various relativist, feminist, or sociological critiques presented in these classes.

I couldn't agree more with his observation that skeptics should acknowledge that there is a deep problem with this critique of science.

As Susan Haack points out: "If science were to be transmuted into a tool for promoting a political agenda, or into negotiation among competing interest groups, it really would have come to an end. Aryan or proletarian or feminist 'science' is not inquiry but advocacy, and 'strong objectivity' is only politics in disguise. The demotion of science to politics really would constitute its annihilation; and so the perception, on the part of those scientists who take it seriously, that the New Cynicism is not merely mistaken, but dangerously so, is correct. For these mistaken ideas really could hinder, or even halt, the scientific enterprise" (p. 341, *Defending Science—Within Reason*, 2003).

Keith Soehn
Regina, Saskatchewan
Canada

As someone who was subjected to the postmodernist attack on science this year in grad school, I was extremely grateful for the SKEPTICAL INQUIRER article by Phil Mole, especially for its conclusion that lower-level science courses need to be teaching the history of science. I was subjected to the postmodernist critique of science in only one portion of one lecture in a course on the history of the Unitarian and Universalist

churches, a subject on which the teacher was quite knowledgeable. However, here I felt she ventured out of her field of expertise.

While I wholeheartedly endorse Phil Mole's recommendation that we teach more history of science, a bit of history of postmodernism would be in order. Postmodernism began life as a style of art, architecture, and literature, and as a school of criticism and interpretation of those works of art. It has its antecedents in abstract expressionism, as exemplified by the paintings of Jackson Pollock or the music of John Cage. It originated as a rebellion against what was perceived to be the mind-numbing, soul-destroying effects of a society ruled by technocracy gone amuck, such as that portrayed in Aldous Huxley's *Brave New World.* One of the most perceptive analyses of the science-fiction film classic *Blade Runner* is written by a postmodernist, Scott Bukatmen.

Sadly, the postmodernist rebellion against the dehumanizing abuses of technology mutated into an attack on the objectivity of science altogether, which is an entirely different matter. Here postmodernists overstepped the bounds of their competence and confused the boundaries between ethical questions about technical power and the technical knowledge of those who wield that power. It seems self-evident that moral objections to nuclear weapons should not generate attacks on the truthfulness of atomic physics. For that matter, the havoc wreaked by the Frankenstein monster should not generate attacks on the truthfulness of biology. Yet effectively, the mutation of postmodernist rebellion against technocracy into an attack on the sciences of biology, chemistry, and physics is just such a step. In doing so, postmodernists not only undermine the democracy and egalitarianism they claim to treasure (as Phil Mole points out), they also undermine the ability of society to address the legitimate elements of the postmodernist agenda by effectively coping with the real abuses of technology.

Jonathan Harvey
Palo Alto, California

## Recovered Memories

Jumping on the "repressed memory" bandwagon seems to be popular nowadays, and I think Garry and Loftus have done a wonderful job of exposing some of the weaker aspects of Anderson's studies ("I Am Freud's Brain," May/June 2004). I'm surprised that no mention was given to veterans of wars, however! Are there any documented cases of war veterans truly forgetting their experiences? In any interview I've seen, these veterans seem to remember their experiences as if they had happened recently. Just look at the veterans interviewed in "The Band of Brothers" series. These guys suffered some truly traumatizing experiences and yet still remember them vividly over fifty years later. Surely if people could repress memories as easily as Anderson claims, then men such as WWII and Vietnam veterans would repress their experiences. . . .

Matthew Davis
Decatur, Illinois

As a Freudian, I agree with the conclusion of Garry and Loftus that the research in question does not establish any validity for Freud's theory of repression. But why are researchers debating Freud's original formulation rather than the expanded psychoanalytic theory of ego psychologists such as Anna Freud and Heinz Hartmann? Repression is not the only defense against anxiety, but one of a dozen or so; and the interesting question is how an individual comes to favor one defense over another. Other variables may also play a part in repression involving abuse, such as the intensity of abuse, whether it was chronic, acute, and/or repeated, and the stage of psychological development of the victim at the time(s) of the abuse.

The issue is further clouded by the claims of some zealous "therapists" (not, I think, Freudians) who seem to "recover" memories of abuse in ways that Freud would never have endorsed. I have met several women who "suspected" they had "repressed CSA memories"; why they "suspect" this in the first place would consume more space than is available here.

Further, all victims of abuse should not be assumed to be better than non-victims at "ejecting" unpleasant memories or to have any special skill in banishing general traumatic "words"—as distinguished from associations which are traumatic in their own specific, individual cases. Individual ego strength determines why one person may be troubled by a stress which may seem unimportant to us, while another may be able to live satisfactorily with a much stronger stress.

Nancy Rader
Acton, Massachusetts

In the arguments over recovered memories, I was struck by this quote from the Spanish Benedictine monk Benito Feijoo, writing at the end of the 1720s:

"Sometimes it happens with subjects in whom a lively imagination is combined with a timid heart; when they get frightened and think about some serious crime...especially when the public gets perturbed by it, and justice pays it close attention . . . it strangely distorts the mind, opening it to fantasies and chimerical images. The horror of the crime and the severity of the punishment throw the animal spirits into such disarray that, for fear of committing the act, imagination takes it as having been committed. One sees a clear example of this in ultra-scrupulous people who sometimes believe they have committed the very sins that horrify them most."

How contemporary.

Quoted from *Goya*, by Robert Hughes, p. 203.

Alan Dean Foster
Prescott, Arizona

## Homeopathic Suicide?

I agree to a large extent with Luc Bonneux ("Belgium Skeptics Commit Mass Suicide," May/June 2004) and recognize that the reported explanations of Belgian health-insurance companies for their decision to cover part of the costs for homeopathy are less than satisfactory. However, there is a plausible explanation: A patient merely in need of seeing a doctor and receiving a (any!) prescription is obviously better served by homeopathy. And cheaper served. Whether these positive effects outweigh the negative effect of "offering a quality label to quackery" (and everything that entails) is up to debate. While we can expect insurance companies to know a little bit about economy, it is very optimistic to assume they'd always explain the precise reasoning behind their decisions to the public.

Lennart Meier
Zürich, Switzerland

Forgive me if I'm not the first to suggest the following: Homeopathy doesn't need a molecule of evidence in its favor because, to be consistent, homeopathy should claim that the complete lack of evidence for it is somehow effective and sufficient anyway.

Paul Rinzler
San Luis Obispo, California

## Dan Brown's Service?

Poor Dan Brown. First the churchmen disparage his book, and now the skeptical community has done the same. However, the criticism overlooks the obvious: *The Da Vinci Code* is a novel, and novels have no requirement to reflect the truths of the lived-in world. Though many novelists do work to get their backgrounds right, they are merely choosing a particular writing strategy.

But what of the "these are facts" assertion at the beginning of the book? It is a variation on a common literary device. *Dracula*, for example, starts with a note that includes this sentence: "All needless matters have been eliminated, so that a history almost at variance with the possibilities of latter-day belief may stand forth as simple fact." *The Name of the Rose* opens with a long note about finding a manuscript, which the novel proper then reproduces. Yes, novelists like to write notes.

Yet the churchmen may be right to worry. Some like to say the Gospels must be literally true, because otherwise no one would ever have believed them. Skeptics, I think, are best served by understanding *The Da Vinci Code* as evidence for how easy it is to attract people to made-up religious concepts with no more authority than an assertion made in a work of fiction. Seen that way, Brown, intentionally or not, has performed a useful service.

Gary Harris
Falls Church, Virginia

## Criticizing the Messenger about NCCAM's Biases

Dr. Kimball Atwood's original article on the National Center for Complementary and Alternative Medicine (NCCAM) and his answer to the Myra Jones letter in January/February 2004 SI need no defense. I comment on the Jones letter and the two May/June 2004 letters.

Arvey Olsen complained that Atwood's answer came across as bullying. Bill Aird called Atwood's response "hostile, provocative . . . arrogance." Both should reread the exchange. They ignored the content.

Jones suggested skeptics "work together" with NCCAM. We have volunteered for various NCCAM committees and commissions. None has been named, consulted, or acknowledged. Requests for information have been stonewalled. I had to attend NCCAM functions at my own expense.

NCCAM policy is controlled by Senators Harkin (D–Iowa), Hatch (R–Utah), and Burton (R–Indiana) whose magical beliefs form resentment of modern medicine similar to Ms. Jones's. NCCAM supports integration of quackery, not inquiry.

Jones suggested that we be skeptical of scientific medicine as we are of "alternative" medicine. Absurd. Then she generalized the pharmaceutical industry's commercial behavior to medical science and practice.

She stated that modern scientific medicine is "a medical industry," 1) is "a set of social institutions . . . definitely not objective;" 2) has "a systemic conflict of interest that works against patients;" 3) its "agenda has nothing to do with keeping people healthy . . . treating symptoms after disease has appeared;" 4) "spends billions on advertising," "researchers . . . cook research results," and "drug reactions kill an enormous number of people each year," and on.

These are biased, scurrilous misinterpretations by sectarians and cultists—libelous if stated about an individual.

Dr. Atwood addressed "alternative medicine's" and NCCAM's biases, unreason, and commercial, ideological conflicts of interest. The correspondents criticized Atwood, ignoring the problem.

Wallace Sampson
Editor, *The Scientific Review of Alternative Medicine*
Los Altos, California

## Point of Honor: A Response to Letters on Science/Religion

*The following reply by Susan Haack is to letters that appeared in our July/August 2004 issue about her article, "Point of Honor: Science and Religion" (March/April 2004).*—EDITOR

*Susan Haack replies:*

*(1) Prof. Vitulli is apparently unaware that in chapters 3 and 4 of* Defending Science—Within Reason: Between Scientism and Cynicism *(the book from chapter 11 of which "Point of Honor" was excerpted), I discuss questions of evidence, warrant, and methodology at length; and argue among other things that a Bayesian analysis of the warrant of scientific or other empirical claims is inadequate, and that "Bayesianism" cannot provide a satisfactory account of scientific methodology. Where the existence of God is concerned, moreover, I have no idea how prior probabilities might be assigned. So I don't see Bayes' Theorem as helping here. As for the rest of Prof. Vitulli's letter, I have room only to remind readers that my main theses were, simply, that the scientific and the religious world-pictures are incompatible, and that the scientific is by far the better-warranted—even though no scientific claim is in principle beyond revision should new evidence demand it.*

*(2) Instead of addressing my arguments against Steven Jay Gould's attempt to reconcile science and religion, Prof. Stover suggests that Gould's motivation may have been to make science "more inclusive," and so more attractive to the religious-minded. "If we first demonstrate that science and religion are not 'at odds,'" he continues, "we may alienate fewer people." If however, as I argued, science and religion* are *at odds, this* can't *be demonstrated; and to suggest otherwise in hopes of advancing the cause of science would be dishonest.*

*(3) When discussing Richard Swinburne's attempted reconciliation of science and religion—very different from Gould's—I noted that the connection between Swinburne's natural theology and the sciences is tenuous, and among other things that his arguments would be unaffected were the universe more orderly than it is, or less. This passing allusion to quantum mechanics was only one example among many, so M. Potvin's letter is quite tangential to anything I said.*

*(4) Ms. Eckler is correct: the prohibition against allowing persons with defective eyesight to approach the altar does indeed come from Leviticus 21:20, not, as H. Irwin Smith had said, Leviticus 20:20—and so, sadly, is not "exquisitely numbered" after all.*

The letters column is a forum for views on matters raised in previous issues. **Letters should be no more than 225 words.** Due to the volume of letters not all can be published. Address letters to Letters to the Editor, SKEPTICAL INQUIRER. Send by mail to 944 Deer Dr. NE, Albuquerque, NM 87122; by fax to 505-828-2080; or by e-mail to letters@csicop.org (include name and address).

# THE COMMITTEE FOR THE SCIENTIFIC INVESTIGATION OF CLAIMS OF THE PARANORMAL

AT THE CENTER FOR INQUIRY–TRANSNATIONAL (ADJACENT TO THE STATE UNIVERSITY OF NEW YORK AT BUFFALO)

## AN INTERNATIONAL ORGANIZATION

## Network of Affiliated Organizations

### International

**AUSTRALIA. Canberra Skeptics**, Canberra Australia. Peter Barrett, President. PO Box 555, Civic Square ACT 2608 Australia. **Australian Skeptics Inc.**, Australia. Barry Williams, Executive Officer. Tel. 61-2-9417-2071; e-mail: skeptics@kasm.com.au. PO Box 268, Roseville NSW 2069 Australia. www.skeptics.com.au. **Australian Skeptics**—Hunter Region Newcastle/Hunter Valley. Dr. Colin Keay, President. Tel.: 61-2-49689666; e-mail: bolide@hunterlink.net au. PO Box 166, Waratah NSW 2298. **Australia Darwin Skeptics**, Northern Territory, Australia. Simon Potter, Secretary. Tel.: 61-8-8932-7552; e-mail: dwnskeptic@ais.net.au. PO Box 809, Sanderson NT 0812 Australia. **Gold Coast Skeptics**, Queensland, Australia. Lilian Derrick, Secretary. Tel.: 61-7-5593-1882; e-mail: lmderrick@telstra.easymail.com.au. PO Box 8348, GCMC Bundall QLD 4217 Australia. **Queensland Skeptics Assoc. Inc.** (Qskeptics) Queensland. Bob Bruce, President. Tel.: 61-7-3255-0499; e-mail: qskeptic@uq.net.au. PO Box 6454, Fairview Gardens QLD 4103 Australia. **South Australia Skeptics (SAS)** South Australia. Mr. Laurie Eddie, Secretary. Tel.: 61-8-8272-5881; e-mail: allang@txc.net.au. PO Box 377, Rundle Mall SA 5000 Australia. **Australian Skeptics in Tasmania Inc.**, Tasmania, Australia. Fred Thornett, Secretary. Tel.: 61-3-6234-1458; e-mail: fredthornett@hotmail.com. PO Box 582, North Hobart, TAS 7000 Australia. **Australian Skeptics**—Victorian Branch Victoria. Christopher Short, President. Tel.: 613-1800-666--996; e-mail: contact@skeptics.com.au. GPO Box 5166AA, Melbourne VIC 3001 Australia. www.skeptics.com.au. **WA Skeptics**, Western Australia. Dr. John Happs, President. Tel.: 61-8-9448-8458; e-mail: wa.skeptics@australiamail.com. PO Box 899, Morley, WA 6062 Australia.

**BELGIUM. Comité Belge Pour L'Investigation Scientifique des Phénomènes Réputés Pananormaux Comité Para**, Belgium. J. Dommanget, President of the Committee. E-mail: omer.nys@oma.be. Observatoire Royal Belgique 3, ave. Circulaire B-1180, Brussels, Belgium. www.comitepara.be. **Studiekring voor Kritische Evaluatie van Pseudowetenschap en Paranormale beweringen** (SKEPP) Belgium. Prof. Dr. W. Betz. Tel.: 32-2-477-43-11; e-mail: skepp@skepp.be Laarbeeklaan. 103 B-1090 Brussels, Belgium. www.skepp.be.

**BRAZIL. OPÇAO RACIONAL**, Brazil. Luis Fernando Gutman. Tel.: 55-21-548-2476; e-mail: fernandogutman@hotmail.com. Rua Santa Clara, 431 Bloco 5, Apt. 803, Copacabana-Rio de Janeiro 22041-010 Brazil. www.opcaoracional.com.br.

**BULGARIA. Bulgarian Skeptics**, Bulgaria. Dr. Vladimir Daskalov. E-mail: egoshev@einet.bg. Krakra 22 BG-1504 Sofia, Bulgaria.

**CANADA. Alberta Skeptics**, Alberta. Greg Hart, Chairman. Tel.: 403-215-1440; e-mail: hartg@human-effort.com. PO Box 5571, Station 'A', Calgary, Alberta T2H 1X9 Canada. http://abskeptics.homestead.com. **Alberta Skeptics, British Columbia Skeptics**, BC and Alberta. Lee Moller. Tel. 604-929-6299; e-mail. lee moller@shaw.ca. 1188 Beaufort Road, N. Vancouver, BC V7G 1R7 Canada. **Ontario Skeptics Society for Critical Inquiry (OSSCI)**, Ontario, Canada. Eric McMillan, Chair. Tel.: 416-425-2451; e-mail: eric@editoreric.com. P.O. Box 554 Station "P" Toronto, ON M5S 2T1 Canada. www.skeptics.ca. **Toronto Skeptical Inquirers** (TSI) Toronto. Henry Gordon, President. Tel.: 905-771-1615; e-mail: henry_gordon@hotmail.com. 343 Clark Ave., W., Suite 1009, Thornhill, ON L4J 7K5 Canada. **Sceptiques du Quebec**, Quebec. Alan Bonnier. Tel.: 514-990-8099. C.P. 202, Succ. Beaubien Montreal, Quebec H2G 3C9 Canada. www.sceptiques.qc.ca. **Skeptics Quinte**, Bill Broderick. 2262 Shannon Rd. R.R. 1, Shannonville, ON K0K 3A0; e-mail: broderic@kos.net.

**CHINA. China Association for Science and Technology**, China. Shen Zhenyu Research Center, P.O. Box 8113, Beijing China. **Hong Kong Skeptics**, Hong Kong. Brad Collins, P.O. Box 1010, Shatin Central Post Office, Shatin NT China.

**COSTA RICA. Iniciativa para la Promoción del Pensamiento Crítico** (IPPEC) San Jose. Victor Quiros V. Tel.: 506 275 43 52; e-mail: victorcr@racsa.co.cr. A.P. 1513-1002 Paseo de los Estudiantes San José, Costa Rica. http://webs.demasiado.com/vicr.

**CZECHOSLOVAKIA. Sisyfos-Czech Skeptics Club**. Czech Republic. Ms. Ing. Olga Kracikova, Secretary. Tel.: 420-2-24826691; e-mail: olgakracikova@email.cz. Hastalska 27 Praha 1 110 00 Czech Republic. www.fi.muni.cz/sisyfos/ (in Czech).

**DENMARK. Skeptica: Association of Independent Danish Skeptics**, Denmark. Willy Wegner. Tel.: 45-75-64-84-02; e-mail: skeptica@skeptica.dk. Vibevej 7 A DK 8700 Horsens, Denmark. www.skeptica.dk.

**ECUADOR.** Pablo Cevallos Estarellas. Apartado 09-01-5603 Guayaquil, Ecuador.

**ESTONIA Horisont.** Indrek Rohtmets. EE 0102 Tallinn, Narva mnt 5

**FINLAND. SKEPSIS**, Finland. Jukka Hakkinen. PO Box 483, Helsinki 00101 Finland.

**FRANCE. AFIS**, AFIS (Association Française pour l'Information Scientifique) France. Jean Bricmont, President. 14 rue de l'Ecole Polytechnique F-75005 Paris, France. **Cercle Zététique**, France. Paul-Eric Blanrue. 12 rue; David Deitz. F-57000 Metz, France. **Laboratoire de Zététique** (laboratory). Professeur Henri Broch. Tel.: 33-0492076312; e-mail:broch@unice.fr. Université de Nice-Sophia Antipolis Faculté des Sciences F-06108 Nice Cedex 2 France. www.unice.fr/zetetique/.

**GERMANY. Gesellschaft zur wissenschaftlichen Unterrsuchung von Parawissenschaften** (GWUP) Germany. Amardeo Sarma, Chairman. Tel.: 49-6154-695023. E-mail: info@gwup.org. Arheilger Weg 11 D-64380 Rossdorf, Germany. www.gwup.org. **European Council of Skeptical Organizations** (ECSO) Europe. Dr. Martin Mahner. Tel.: 49-6154-695023; e-mail: info@ecso.org. Arheilger Weg 11 64380 Rossdorf, Germany. www.ecso.org/.

**HUNGARY. Tényeket Tisztelk Társasága TTT Hungary.** Prof. Gyula Bencze. Tel.: 36-1-392-2728; e-mail: gbencze@rmki.kfki.hu. *c/o Természet Világa*, PO Box 246 H-1444 Budapest 8 Hungary.

**INDIA. Atheist Centre,** Dr. Vijayam, Executive Director. Benz Circle, Vijayawada 520 010, Andhra Pradesh, India. Tel.: 91 866 472330; Fax: 91 866 473433. E-mail: atheist@vsnl.com. **MaharashtraAndhashraddha Nir moolan Samiti** (MANS) states of Maharashtra & Goa. Dr. Narendra Dabholkar, Executive President. Tel.: 91-2162-32333; e-mail: ndabholkar@hotmail.com. 155, Sadashiv Peth Satara 415001 India. www.antisuperstition.com. **Indian Rationalist Association**, India. Sanal Edamaruku. E-mail: edamaruku@vsnl.com or IRA@rationalist international.net. 779, Pocket 5, Mayur Vihar 1, New Delhi 110 091 India. Dravidar Kazhagam, southern India. K. Veeramani, Secretary General. Tel.: 9144-5386555; e-mail: periyar@vsnl.com. Periyar Thidal, 50, E.F.K. Sampath Road Vepery, Chennai Tamil Nadu 600 007 India. www.Periyar.org. **Indian CSICOP**, India, B. Premanand, Convenor. Tel.: 091-0422-872423; e-mail: dayamini@md4.vsnl.net.in. 11/7 Chettipalayam Road Podanur Tamilnadu 641 023 India.

**ITALY. Comitato Italiano per il Controllo delle Affermazioni sul Paranormale** (CICAP) Italy. Massimo Polidoro, Executive Director. Tel.: 39-049-686870; e-mail: polidoro@cicap.org. P.O. Box 1117 35100 Padova, Italy. www.cicap.org.

**IRELAND. The Irish Skeptics Society** c/o Paul O'Donoghue, 11 Woodleigh Elm, Highfield Rd., Rathgar, Dublin 6. Ireland; www.irishskeptics.net E-mail:contact@irishskeptics.net.

**JAPAN. Japan Anti-Pseudoscience Activities Network** (JAPAN) Japan. Ryutarou Minakami, chairperson. E-mail: skeptic@e-mail.ne.jp. c/o Ohta Publishing Company, Epcot Bld, 1F, 22, Arakicho, Shinjuku-ku Tokyo 160-8571 Japan. **Japan Skeptics**, Japan. Dr. Jun Jugaku. E-mail: jugakujn@cc.nao.ac.jp. Japan Skeptics, Business Center for Academic Societies, Japan 5-16-9 Honkomagome, Bunkyo-ku Tokyo 113-8622 Japan.

**KAZAKHSTAN. Kazakhstan Commission for the Investigation of the Anomalous Phenomena** (KCIAP) Kazakhstan. Dr. Sergey Efimov, Scientific Secretary. E-mail: efim@afi.south-capital.kz. Astrophysical Institute Kamenskoye Plato Alma-Ata, 480020 Republic of Kazakhstan. Committee for the Scientific Expertise of Claims of the Paranormal (CSECOP).

**KOREA. Korea PseudoScience Awareness** (KOPSA) Korea. Dr. Gun-Il Kang, Director. Tel.: 82-2-393-2734; e-mail: KOPSA@chollian.net. 187-11 Bukahyun-dong, Sudaemun-ku, Seoul 120-190 Korea www.kopsa.or.kr.

**MALTA. Society for Investigating the Credibility of Extraordinary Claims** (SICEC) Malta. Vanni Pule, Chairman. Tel.: 356-381994; e-mail: pulevan@vol.net.mt. P.O. Box 31, Hamrun, Malta.

**MEXICO. Mexican Association for Skeptical Research** (SOMIE) Mexico. Mario Mendez-Acosta, Apartado Postal 19-546 D.F. 03900 Mexico.

**NETHERLANDS. Stichting Skepsis**, Netherlands. Jan Willem Nienhuys, Secretary. e-mail: jnienhuy@win.tue.nl. Dommelseweg 1A, 5581 VA Waalre, Netherlands.

**NEW ZEALAND. New Zealand Skeptics**, New Zealand, Vicki Hyde, Chair. Tel.: 64-3-384-5136; e-mail: Vicki@spis.co.nz. PO Box 29-492, Christchurch, New Zealand. www.skeptics.org.nz.

**NIGERIA. Nigerian Skeptics Society**, Nigeria. Leo Igwe, Convenor. E-mail: dpc@skannet.com.ng. PO Box 25269, Mapo Ibadan Oyo State, Nigeria.

**NORWAY. SKEPSIS.** Norway St. Olavsgt. 27 N-0166 Oslo, Norway.

**PERU. Comite de Investigaciones de lo Paranormal lo Seudocientifico y lo Irracional CIPSI-PERU**, Lima, Peru. Manuel Abraham Paz-y-Mino. Tel.: +51-1-99215741; e-mail: cipsiperu@yahoo.com. El Corregidor 318 Rímac, Lima 25 Peru. www.geocities.com/cipsiperu.

**POLAND. Polish Skeptics**, Poland. Adam Pietrasiewicz. E-mail: redaktor@iname.com. www.biuletynsceptyczny.z.pl.

**PORTUGAL. Associaçao Cépticos de Portugal (CEPO)** Portugal. Ludwig Krippahl. E-mail: cepo@interacesso.pt. Apartado 334 2676-901 Odivelas, Portugal. http://cepo.interacesso.pt.

**RUSSIA.** Dr. Valerii A. Kuvakin. Tel.: 95-718-2178; e-mail: V.KUVAKIN@MTU-NET.RU. Vorob'evy Gory, Moscow State University, Phil. Dept. Moscow 119899 Russia. http://log.philos.msu.ru/rhs/index/htm.

**SINGAPORE. Singapore Skeptics.** Contact: Ronald Ng. E-mail: ronaldng@iname.com.www.skeptic.iwarp.com.

**SLOVAK REPUBLIC** (SACT). Slovak Republic. Igor Kapisinsky Pavla Horova, 10 Bratislava 841 07 Slovak Republic.

**SOUTH AFRICA.** Marian Laserson. P.O. Box 46212, Orange Grove 2119 South Africa. **SOCRATES. South Africa. Cape Skeptics**, Cape Town. Dr. Leon Retief. Tel.: 27-21-9131434; e-mail: leonr@iafrica.com. 5N Agapanthus Avenue, Welgedacht Bellville 7530 South Africa.

**SPAIN. El Investigador Esceptico**, Spain. Felix Ares de Blas Gámez/Ares/Martinez, P.O. Box 904, Donostia-San Sebastian 20080 Spain. **ARP-Sociedad para el Avance del Pensamiento Crítico** ARP-SAPC Spain. Félix Ares de Blas. Tel.: 34-933-010220; e-mail: arp@arp-sapc.org. Apartado de Correos, 310 E-08860 Castelldefels, Spain. www.arp-sapc.org.

**SWEDEN. Swedish Skeptics**, Sweden. Dan Larhammar, professor chairperson. Tel.: 46-18-4714173; e-mail: vetfolk@physto.se. Medical Pharmacology BMC, Box 593, Uppsala 751 24 Sweden. www.physto.se/~vetfolk/index.html.

**TAIWAN. Taiwan Skeptics**, Taiwan. Tim Holmes, PO Box 195, Tanzu, Taiwan Perspective.

**UNITED KINGDOM. *The Skeptic*** Magazine, United Kingdom. Mike Hutchinson. E-mail: subs@skeptic.org.uk. P.O. Box 475 Manchester M60 2TH United Kingdom.

**VENEZUELA. La Asociación Racional y Escéptica de Venezuela** (A.R.E.V.), Guido David Nuñez Mujica, 10th Street, 13th av. corner, Mini centro comercial Oasis, Valera, Trujillo state, Venezuela. Web site: www.geocities.com/escepticosvenezuela.

# United States

**ALABAMA. Alabama Skeptics**, Alabama. Emory Kimbrough. Tel.: 205-759-2624. 3550 Watermelon Road, Apt. 28A, Northport, AL 35476 US. **Skeptics-Freethought Forum of Alabama**. Skeptics Freethought Forum, Richard Rich, 1801 Beech St. SE, Decatur, AL 35601-3511 US. E-mail: rrbama66@hotmail.com.

**ARIZONA. Tucson Skeptics Inc.** Tucson, AZ. James McGaha. E-mail: JMCGAHA@PimaCC.Pima.EDU. 5100 N. Sabino Foothills Dr., Tucson, AZ 85715 US. **Phoenix Skeptics**, Phoenix, AZ. Michael Stackpole, P.O. Box 60333, Phoenix, AZ 85082-US.

**CALIFORNIA. Sacramento Organization for Rational Thinking** (SORT) Sacramento, CA. Ray Spangenburg, co-founder. Tel.: 916-978-0321; e-mail: kitray@quiknet.com. PO Box 2215, Carmichael, CA 95609-2215 US. www.quiknet.com/~kitray/index1.html. **Bay Area Skeptics** (BAS) San Francisco—Bay Area. *Tully McCarroll, Chair.* Tel.: 415 927-1548; e-mail: tullyann@pacbell.net. PO Box 2443 Castro Valley, CA 94546-0443 US. www.BASkeptics.org. **Sacramento Skeptics Society**, Sacramento. Terry Sandbek, President. 4300 Auburn Blvd. Suite 206, Sacramento CA 95841. Tel.: 916 489-1774. E-mail: terry@sandbek.com. **San Diego Association for Rational Inquiry** (SDARI) President: Todd Rockhold. Tel.: (Todd's personal phone) 760 943-8977. Web site: www.sdari.org. E-mail: info@sdari.org. PO Box 623, La Jolla, CA 92038-0623.

**COLORADO. Rocky Mountain Skeptics** (RMS) Colo., Wyo., Utah, Mont. Béla Scheiber, President. Tel.: 303-444-7537; e-mail: rmscentral@mindspring.com. PO Box 7277, Boulder, CO 80306 US. http://bcn.boulder.co.us/community/rms.

***CONNECTICUT. New England Skeptical Society*** *(NESS)* New England. Steven Novella MD, President. Tel.: 203-281-6277; e-mail: board@theness.com. 64 Cobblestone Dr., Hamden, CT 06518 US. www.theness.com.

**D.C./MARYLAND. National Capital Area Skeptics** NCAS, Maryland, D.C., Virginia. D.W. "Chip" Denman. Tel.: 301-587-3827. e-mail: ncas@ncas.org. PO Box 8428, Silver Spring, MD 20907-8428 US. http://www.ncas.org.

**FLORIDA. Tampa Bay Skeptics** (TBS) Tampa Bay, Florida. Gary Posner, Executive Director. Tel.: 813-584-0603; e-mail: tbskep@aol.com. 5319 Archstone Dr. #102, Tampa, FL 33634 US. http://members.aol.com/tbskep.

**GEORGIA. Georgia Skeptics** (GS) Georgia. Rebecca Long, *President. Tel.: 770-493-6857; e-mail: arlong@hotc*org. 2277 Winding Woods Dr., Tucker, GA 30084 US.

**IOWA. Central Iowa Skeptics** (CIS) Central Iowa, Rob Beeston. Tel.: 515-285-0622; e-mail: ciskeptics@hotmail.com. 5602 SW 2nd St. Des Moines, IA 50315 US. www.skepticweb.com.

**ILLINOIS. Rational Examination Association of Lincoln Land** (REALL) Illinois. Bob Ladendorf, Chairman. Tel.: 217-546-3475; e-mail: chairman@reall.org. PO Box 20302, Springfield, IL 62708 US. www.reall.org.

**KENTUCKY. Kentucky Assn. of Science Educators and Skeptics** (KASES) Kentucky. Prof. Robert Baker, 3495 Castleton Way, North Lexington, KY 40502 US. Contact Fred Bach at e-mail: fredwbach@yahoo.com.

**LOUISIANA. Baton Rouge Proponents of Rational Inquiry and Scientific Methods** (BR-PRISM) Louisiana. Marge Schroth. Tel.: 225-766-4747. 425 Carriage Way, Baton Rouge, LA 70808 US.

**MICHIGAN. Great Lakes Skeptics** (GLS) SE Michigan. Lorna J. Simmons, Contact person. Tel.: 734-525-5731; e-mail: Skeptic31@aol.com. 31710 Cowan Road, Apt. 103, Westland, MI 48185-2366 US. **Tri-Cities Skeptics**, Michigan. Gary Barker. Tel.: 517-799-4502; e-mail: barkerg@svol.org. 3596 Butternut St., Saginaw, MI 48604 US.

**MINNESOTA. St. Kloud Extraordinary Claim Psychic Teaching Investigating Community** (SKEPTIC) St. Cloud, Minnesota. Jerry Mertens. Tel.: 320-255-2138; e-mail: gmertens@stcloudstate.edu. Jerry Mertens, Psychology Department, 720 4th Ave. S, St. Cloud State University, St. Cloud, MN 56301 US.

**MISSOURI. Gateway Skeptics**, Missouri, Steve Best, 6943 Amherst Ave., University City, MO 63130 US. **Kansas City Committee for Skeptical Inquiry**, Missouri. Verle Muhrer, United Labor Bldg., 6301 Rockhill Road, Suite 412 Kansas City, MO 64131 US.

**NEBRASKA. REASON (Rationalists, Empiracists and Skeptics of Nebraska)**, Chris Peters, PO Box 24358, Omaha, NE 68134; e-mail: reason01@hotmail.com; Web page: www.reason.ws.

***NEVADA. Skeptics of Las Vegas,*** *(SOLV) PO Box 531323,* Henderson, NV 89053-1323. E-mail: rbanderson @skepticslv.org. Web site: www.skepticslv.org./.

**NEW MEXICO. New Mexicans for Science and Reason** (NMSR) New Mexico. David E. Thomas, President. Tel.: 505-869-9250; e-mail: nmsrdave@swcp.com. PO Box 1017, Peralta, NM 87042 US. www.nmsr.org.

**NEW YORK. New York Area Skeptics** (NYASk) metropolitan NY area. Jeff Corey, President. 18 Woodland Street, Huntington, NY 11743, Tel: (631) 427-7262 e-mail: jcorev@liu.edu. Web site: www.nyask.com. **Inquiring Skeptics of Upper New York** (ISUNY) Upper New York. Michael Sofka, 8 Providence St., Albany, NY 12203 US. **Central New York Skeptics** (CNY Skeptics) Syracuse. Lisa Goodlin, President. Tel: 315 446-3068; e-mail: info@cnyskeptics.org, Web site: cnyskeptics.org *201 Milnor Ave., Syracuse, NY 13224 US.*

**NORTH CAROLINA. Carolina Skeptics** North Carolina. Eric Carlson, President. Tel.: 336-758-4994; e-mail: ecarlson@wfu.edu. Physics Department, Wake Forest University, Winston-Salem, NC 27109 US. www.carolinaskeptics.org.

**OHIO. Central Ohioans for Rational Inquiry** (CORI) Central Ohio. Charlie Hazlett, President. Tel.: 614-878-2742; e-mail: charlie@hazlett.net. PO Box 282069, Columbus OH 43228 US. **South Shore Skeptics** (SSS) Cleveland and counties. Jim Kutz. Tel.: 440 942-5543; e-mail: jimkutz@earthlink.net. PO Box 5083, Cleveland, OH 44101 US. www.southshoreskeptics.org/.

**Association for Rational Thought** (ART) Cincinnati. Roy Auerbach, president. Tel: 513-731-2774, e-mail: raa@cinci.rr.com. PO Box 12896, Cincinnati, OH 45212 US. www.cincinnati skeptics.org.

**OREGON. Oregonians for Rationality** (O4R) Oregon. Dave Chapman, President. Tel.: 503 292-2146; e-mail: dchapman@iccom.com. 7555 Spring Valley Rd. NW, Salem, OR 97304 US. www.o4r.org.

**PENNSYLVANIA. Paranormal Investigating Committee** ***of Pittsburgh*** *(PICP) Pittsburgh PA. Richard Busch,* Chairman. Tel.: 412-366-1000; e-mail: mindful@telerama.com. 8209 Thompson Run Rd., Pittsburgh, PA 15237 US. **Philadelphia Association for Critical Thinking** (PhACT), much of Pennsylvania. Eric Krieg, President. Tel.: 215-885-2089; e-mail: eric@phact.org. PO Box 1131, North Wales, PA 19454 US. www.phact.org/phact.

**TENNESEE. Rationalists of East Tennessee,** East Tennessee. Carl Ledenbecker. Tel.: 865-982-8687; e-mail: Aletall@aol.com. 2123 Stonybrook Rd., Louisville, TN 37777 US.

**TEXAS. North Texas Skeptics NTS Dallas/Ft Worth area,** John Blanton, Secretary. Tel.: 972-306-3187; e-mail: skeptic@ntskeptics.org. PO Box 111794, Carrollton, *TX 75011-1794 US. www.ntskeptics.org.*

**VIRGINIA. Science & Reason,** Hampton Rds., Virginia. Lawrence Weinstein, Old Dominion Univ.-Physics Dept., Norfolk, VA 23529 US.

**WASHINGTON. Society for Sensible Explanations,** Western Washington. Tad Cook, Secretary. E-mail: K7RA@arrl.net. PO Box 45792, Seattle, WA 98145-0792 US. http://seattleskeptics.org.

**PUERTO RICO. Sociedad De Escépticos de Puerto Rico,** Luis R. Ramos, President. 2505 Parque Terra Linda, Trujillo Alto, Puerto Rico 00976. Tel: 787-396-2395; e-mail: Lramos@escepticospr.com; Web site www.escepticor.com.

The organizations listed above have aims similar to those of CSICOP but are independent and autonomous. Representatives of these organizations cannot speak on behalf of the CSICOP. Please send updates to Barry Karr, P.O. Box 703 Amherst NY 14226-0703.

## SCIENTIFIC AND TECHNICAL CONSULTANTS

**George Agogino,** Dept. of Anthropology, Eastern New Mexico University
**Gary Bauslaugh,** educational consultant, Center for Curriculum, Transfer and Technology, Victoria, B.C., Canada
**Richard E. Berendzen,** astronomer, Washington, D.C.
**Martin Bridgstock,** Senior Lecturer, School of Science, Griffith University, Brisbane, Australia
**Richard Busch,** magician/mentalist, Pittsburgh, Penn.
**Shawn Carlson,** Society for Amateur Scientists, East Greenwich, RI
**Roger B. Culver,** professor of astronomy, Colorado State Univ.
**Felix Ares de Blas,** professor of computer science, University of Basque, San Sebastian, Spain
**Michael R. Dennett,** writer, investigator, Federal Way, Washington
**Sid Deutsch,** consultant, Sarasota, Fla.
**J. Dommanget,** astronomer, Royale Observatory, Brussels, Belgium
**Nahum J. Duker,** assistant professor of pathology, Temple University
**Taner Edis,** assistant professor of physics, Truman State Univ.
**Barbara Eisenstadt,** psychologist, educator, clinician, East Greenbush, N.Y.
**William Evans,** professor of communication, Center for *Creative Media*
**Bryan Farha,** professor of behavioral studies in education, Oklahoma City Univ.
**John F. Fischer,** forensic analyst, Orlando, Fla.
**Eileen Gambrill,** professor of social welfare, University of California at Berkeley
**Luis Alfonso Gámez,** science journalist, Bilbao, Spain
**Sylvio Garattini,** director, Mario Negri Pharmacology Institute, Milan, Italy
**Laurie Godfrey,** anthropologist, University of Massachusetts
**Gerald Goldin,** mathematician, Rutgers University, New Jersey
**Donald Goldsmith,** astronomer; president, Interstellar Media
**Alan Hale,** astronomer, Southwest Institute for Space Research, Alamogordo, New Mexico
**Clyde F. Herreid,** professor of biology, SUNY, Buffalo
**Terence M. Hines,** professor of psychology, Pace University, Pleasantville, N.Y.
**Michael Hutchinson,** author; SKEPTICAL INQUIRER representative, Europe
**Philip A. Ianna,** assoc. professor of astronomy, Univ. of Virginia
**William Jarvis,** professor of health promotion and public health, Loma Linda University, School of Public Health
**I. W. Kelly,** professor of psychology, University of Saskatchewan
**Richard H. Lange,** M.D., Mohawk Valley Physician Health Plan, Schenectady, N.Y.
**Gerald A. Larue,** professor of biblical history and archaeology, University of So. California.
**William M. London,** Touro University, International
**Rebecca Long,** nuclear engineer, president of Georgia Council Against Health Fraud, Atlanta, Ga.
**Thomas R. McDonough,** lecturer in engineering, Caltech, and *SETI Coordinator of the Planetary Society*
**James E. McGaha,** Major, USAF; pilot
**Joel A. Moskowitz,** director of medical psychiatry, Calabasas Mental Health Services, Los Angeles.
**Jan Willem Nienhuys,** mathematician, Univ. of Eindhoven, the Netherlands
**John W. Patterson,** professor of materials science and engineering, Iowa State University
**Massimo Pigliucci,** professor of evolutionary biology, University of Tennessee, Knoxville
**James Pomerantz,** Provost, and professor of cognitive and linguistic sciences, Brown Univ.
**Gary P. Posner,** M.D., Tampa, Fla.
**Daisie Radner,** professor of philosophy, SUNY, Buffalo
***Robert H. Romer,*** *professor of physics, Amherst College*
**Karl Sabbagh,** journalist, Richmond, Surrey, England
**Robert J. Samp,** assistant professor of education and medicine, University of Wisconsin-Madison
**Steven D. Schafersman,** asst. professor of geology, Miami Univ., Ohio
**Béla Scheiber,*** systems analyst, Boulder, Colo.
**Chris Scott,** statistician, London, England
**Stuart D. Scott, Jr.,** associate professor of anthropology, SUNY, Buffalo
**Erwin M. Segal,** professor of psychology, SUNY, Buffalo
**Carla Selby,** anthropologist/archaeologist
**Steven N. Shore,** professor and chair, Dept. of Physics and Astronomy, Indiana Univ. South Bend
**Waclaw Szybalski,** professor, McArdle Laboratory, University of Wisconsin-Madison
**Sarah G. Thomason,** professor of linguistics, University of Pittsburgh
**Tim Trachet,** journalist and science writer, honorary chairman of SKEPP, Belgium.
**David Willey,** physics instructor, University of Pittsburgh
*Member, CSICOP Executive Council

## CENTERS FOR INQUIRY

www.centerforinquiry.net

**TRANSNATIONAL**
P.O. Box 703, Amherst, NY 14226
Tel.: (716) 636-1425

**WEST**
4773 Hollywood Blvd., Los Angeles, CA 90027
Tel.: (323) 666-9797

**METRO NEW YORK**
30 Rockefeller Plaza, #2829, New York, NY 10112
Tel: (212) 265-2877

**FLORIDA**
P.O. Box 8099, St. Petersburg, FL 33738-8099
Tel.: (727) 209-2902

**EGYPT**
44 Gol Gamal Street, Agouza, Giza, Egypt

**FRANCE**
Prof. Henri Broch,
Universite of Nice, Faculté des Sciences,
Parc Valrose, 06108, Nice cedex 2. France
www.unice.fr/zetetics/

**NEPAL**
Humanist Association of Nepal
P.O. Box 5284, Kathmandu, Nepal
tel: 011977 125 7610

**PERU**
D. Casanova 430, Lima 14, Peru

**EUROPE**
Dr. Martin Mahner
Arheilger Weg 11, D-64380 Rossdorf, Germany
Tel.: +49 6154 695023

**MOSCOW**
Professor Valerii A. Kuvakin
119899 Russia, Moscow, Vorobevy Gory,
Moscow State University, Philosophy Dept.

**NIGERIA**
PO Box 25269, Mapo, Ibadan, Oyo State, Nigeria

# Center for Inquiry Transnational

"... to promote and defend reason, science, and freedom of inquiry in all areas of human endeavor."

## THE COMMITTEE FOR THE SCIENTIFIC INVESTIGATION OF CLAIMS OF THE PARANORMAL

### An Abrasive Collision Gives One Galaxy a "Black Eye"

A collision of two galaxies has left a merged star system with an unusual appearance as well as bizarre internal motions. Messier 64 (M64) has a spectacular dark band of absorbing dust in front of the galaxy's bright nucleus, giving rise to its nicknames of the "Black Eye" or "Evil Eye" galaxy.

Fine details of the dark band are revealed in this image of the central portion of M64 obtained with the Hubble Space Telescope. M64 is well known among amateur astronomers because of its appearance in small telescopes. It was first cataloged in the 18th century by the French astronomer Messier. Located in the northern constellation Coma Berenices, M64 resides roughly 17 million light-years from Earth.

Image Credit: NASA and The Hubble Heritage Team (AURA/STScI)

## Skeptical Inquirer

THE MAGAZINE FOR SCIENCE AND REASON

**The Committee is a nonprofit scientific and educational organization.**
**The SKEPTICAL INQUIRER is its official journal.**

The Committee for the Scientific Investigation of Claims of the Paranormal encourages the critical investigation of paranormal and fringe-science claims from a responsible, scientific point of view and disseminates factual information about the results of such inquiries to the scientific community, the media, and the public. It also promotes science and scientific inquiry, critical thinking, science education, and the use of reason in examining important issues.

**West** Los Angeles, California
**Peru** Lima, Peru
**Nigeria** Oyo State, Nigeria
**Metro New York** Manhattan, New York
**Europe** Rossdorf, Germany
**Nepal** Kathmandu, Nepal
**France** Universite of Nice, France
**Florida** Tampa Bay, Florida
**Moscow** Moscow State University
**Egypt** Giza, Egypt